

# Students' Perceptions of Challenges and Solutions to Face-to-Face and Online Group Work

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## Abstract

Effective collaboration in small teams is valued by employers. Group projects can be a valuable experience in academics to apply knowledge, solve problems, and develop teamwork skills. Students frequently encounter group work in academic classes but are often not taught how to facilitate effective group collaboration and left to "figure it out on their own." Students frequently complain of group work because of bad past experiences. This study identifies the types of problems students self-report having experienced in group work. A survey and qualitative analysis was used. The study also investigates whether face-to-face and online students experience the same problems or to the same degree. Business students in a Management Information Systems course reported the challenges they experienced in a multi-week group project as they encountered the System Development Life Cycle in groups of 4-5 students (N = 120 students from three course sections). Students identified lack of communication, participation, collaboration, accountability, and interaction as the most common problems experienced. We discussed several recommendations that may help resolve communication challenges and increase effective collaboration.

**Keywords:** group work, online learning, collaboration, small group communication

## 1. INTRODUCTION

Students learn best when they are actively involved in their learning process (Davis, 1993). In both face-to-face (f2f) and online learning environments, instructors implement a variety of learning strategies to create meaningful learning experiences. One common instructional strategy used is group work. Group work is the collaboration of students working on the same learning goals.

Implemented correctly, group work has been found to foster learning (Favor & Kulp, 2015; Kemp & Grieve, 2014; Lowes, 2014), help students apply knowledge (Elgort, Smith, & Toland, 2008), encourage problem-solving skills (Canham, Wiley, & Mayer, 2012; Shimazoe & Aldrich, 2010), acquire greater communication skills (Oakley, Felder, Brent, & Elhadj, 2004), and develop teamwork skills among students (Brutus & Donia, 2010). Group work has been used in both face-to-face and online courses (Bonk, Lee, Liu, & Su, 2007; Ekblaw, 2016).

However, implementing group work successfully, especially in online classes, continues to be a major challenge for instructors and students.

The purpose of this study is to examine students' experiences regarding group work in both face-to-face and online courses. Specifically, we investigate group work in a Management Information Systems course. The results of this study may help instructors design group work that can increase student learning, success, and satisfaction.

The study addresses the following research questions:

1. What are the challenges that undergraduate students experience with group work in education?
2. Are there any differences in undergraduate student's perceptions of or challenges with group work when comparing face-to-face and online course delivery?
3. What ameliorations might have the potential to overcome the challenges students face in group work?

## 2. LITERATURE REVIEW

Several studies found that online students dislike group work much more than face-to-face students (Favor & Kulp, 2015; Kemp & Grieve, 2014; Lowes, 2014). One study concluded that in adult learners, the attitude towards online group work influenced by prior negative experiences is unlikely to change regardless of how effective the current instructor or group is (Favor & Harvey, 2016).

Roberts and McInnerney (2007) and Ekblaw (2016) summarized seven major challenges that impacted group work in both face-to-face and online environments. These challenges included:

- Student apathy towards group work. Students are not motivated or do not understand the benefits of group work.
- Selecting an appropriate process and the size of the group.
- Lack of group or social skills. Students often do not have the collaboration, management, or leadership skills needed to be an effective member of a group.
- Free riders are group members who do not participate yet receive the same grade.
- Inequality of student abilities within the group.

- Poor distribution or delegation of roles and responsibilities within the group.
- The fair or inequitable assessment of individuals within the groups.

Many of these challenges are interrelated. For example, student apathy can lead to free riding. Lack of group skills can lead to poor distribution of roles (Roberts & McInnerney, 2007). Additionally, Riebe, Girardi, and Whited (2016) noted that educators favored teaching content over process and tended to place students in teams with little or no instruction on how to work in teams and that was a major challenge to group work.

While most literature generally agrees on problems that can occur during group work, the solutions often diverge. Roberts and McInnerney (2007) attempted to provide a solution to each of the seven problems. However, some of the solutions may not be feasible, such as creating an entirely new course focused on teaching group work skills. Ekblaw (2016) made a distinction between cooperation and collaboration. He defined cooperation as delegating tasks in parallel so that team members can work independently. Furthermore, he defined collaboration as the process of working on the tasks synchronously and collocated, which can be difficult to implement online. Ekblaw suggested that collaboration was more important to a successful group. Lowes (2014) researched online groups and found that delegating tasks in parallel was more effective than synchronous collaboration of group members.

Students are often most concerned about and motivated by their grade. Fairly assessing group projects has a large impact on students' perceptions of the success or failure of the project (Favor & Harvey, 2016; Roberts & McInnerney, 2007). Baugh (2017) attempted to solve the problem of assessing group projects by tracking student contributions. Students would log their specific work in a database. The instructor assigned grades based 50% on the final group deliverable and 50% on the contribution of the individual student. Baugh (2017) concluded that students liked tracking their contributions and preferred the visible level of accountability afforded by a database. Other researchers highlighted the use of peer evaluations for assessment (Favor & Harvey, 2016; Oakley et al., 2004).

Javadi, Gebauer, and Novotny (2017) used network analysis to compare face-to-face and

online groups who used a discussion forum for learning. Their research concluded that online discussions closely resembled face-to-face interactions. Does this finding generalize beyond group discussions to group work that produces a deliverable? Kemp and Grieve (2014) compared face-to-face and online communication in groups that were collaboratively writing. Their study indicated that online students registered more complaints regarding communication and indicated a preference to communicating face-to-face. However, the study also noted that there was no significant difference in academic performance face-to-face and online students, even though the online students complained more.

We build on prior research by investigating group work as defined by the following characteristics: small group sizes (4-5 members), collaboration over several weeks, and producing a written business document. This definition can generalize to a business context where professional teams collaborate to produce a deliverable, e.g., proposal, recommendations, business decisions, etc.

### 3. METHODOLOGY

#### Participants

In this study, the participants were undergraduate students at a regional university in the southern United States. The survey was sent to 189 students who were enrolled in a required Management of Information System course. One hundred twenty students (face-to-face = 52, online = 68) completed the survey. Participants included 72 females (60%) and 48 males (40%). Participant's major included management (22%), general business (21%), finance (17%), accounting (16%), marketing (11%), computer information systems (9%), economics (3%), and business law and ethics (2%). The course was a junior-senior level course in a college of business with a typical undergraduate age range of approximately 20-30 years old with a few outliers.

#### Context

As part of the course curriculum, students completed a group project where they acted as an information systems consultant for a fictitious company. The goal of this assignment was for students to experience the analysis and design phases of the software development life cycle process (SDLC) and recommend a solution that involved an off-the-shelf, information system solution. The SDLC simulation was created by the professors who taught the course. The

company had problems associated with growth: more employees than previously experienced, accounting inefficiency, over 90-day aging, errors in manual paper timesheet and payroll processes, desire to expand into new locations, desire to use social media marketing, interoperability problems, etc. The stakeholders, who were actors playing the role of owner, accountant, marketing director, and general manager, answered the following questions in a video. The video format was chosen to simulate a face-to-face meeting with stakeholders.

1. What do you do?
2. Please describe the problems you are facing and the associated business processes.
3. What are the negative impacts of these problems? What are the pains caused by these problems and can you quantify the negative impact?
4. How do you see the process changing if you could have anything you wish?
5. What requirements will your solution need to have? What constraints are you working under that we need to consider?

These videos were hosted on a website. Students were required to select the predefined interview questions as if they, the consultants, asking the question. The related video would play of the stakeholder answering the question. Students used stakeholder responses to identify problems in business processes, quantify the impacts of those problems, identify system requirements, identify any system or business constraints, and propose an IS solution. Students wrote this content into a 10-14 page proposal.

The group project lasted four weeks within a 16-week curriculum and included four phases. In Phase 1, students created their group profiles, communication plan, conducted the analysis phase, and identified the two business problems they wanted to solve. In Phase 2, students identified a potential information system solution and wrote about the IS in detail. In Phase 3, the professor met with each group to give feedback on the draft proposal. In Phase 4, students finalized the proposal, turned in the proposal, and completed peer evaluations. Three instructors taught the course. They all followed the same written course materials for the group project.

#### Data Sources

The data for this study came from an online survey that was administered at the end of the

group project. The survey consisted of demographic questions such as class standing and major and a question, "Check all the problems you encountered while working with your group this semester." Participants could select from sixteen predefined answers that were adapted from Koh and Hill (2009). The participants could also select "Other" as a response and free form an answer.

Participants were also asked to answer an open-ended question, "Think about your overall current group experience in this class. What challenges did you encounter working with your group? Please explain." Participants reflected on the challenges they faced and wrote their response in short-answer form.

### Data Analysis

Descriptive statistics were used to summarize the data. For the open-ended question, the authors coded the data as follows. First, the authors independently read the open-ended responses. The data were reviewed and analyzed using the constant comparative method (Glaser & Strauss, 1967). The authors then identified themes and categories related to students' experiences with the group project (Lincoln & Guba, 1985). Then, the authors compared, discussed, and agreed on the emerging themes until they all reached an agreement.

## 4. RESULTS

In both face-to-face and online sections, lack of communication among group members was rated as the most frequent problem experienced (37% of face-to-face respondents reported having experienced a lack of communication, 32% among online students). Table A1 identifies all the problems students expressed (see Appendix A).

Other reported problems experienced by the face-to-face students were as follows: lack of participation from group members (35% of students expressed this concern), lack of collaboration among group members (33%) and lack of accountability of group members (33%), and lack of interaction among group members (31%).

In the online sections, students reported other problems such as difficulty understanding the goal of the project (28%), lack of interaction among group members (26%), and lack of participation from group members (25%), lack of initiative from group members (25%).

Regarding the difference in perspectives of online students to face-to-face students, online students ranked difficulty understanding the project and lack of initiative from group members among their top-5 challenges whereas face-to-face students included those in their top-8 challenges. We concluded that the face-to-face and online students largely experienced the same top challenges.

The open-ended question analysis supported the main finding that lack of communication was the most frequent problem experienced. See Table A2 for responses from face-to-face students (N = 52 respondents) and Table A3 for responses from online students (N = 68 respondents). Results from the open-ended analysis showed that the top-3 complaints by face-to-face students were lack of communication (22% of respondents expressing this complaint), lack of peer participation (19%), and different/conflicting schedules (13%). The top-3 complaints from online students were lack of communication (34% of respondents expressing this complaint), different/conflicting schedules (24%), and lack of peer participation (18%).

Students expounded that the lack of response from peers and lack of feedback from peers contributed to the lack of communication complaint. The following list is a representative sample of open-ended responses from both face-to-face and online students:

"Members did not communicate effectively" (f2f).

"Many of my group members would not respond to text messages that were sent out and would just start typing on the paper, not knowing what to do and we would have to" (f2f).

"Some group members did not check in or we were unaware of who did some of the work due to a lack of communication" (f2f).

"Although we each did our own work, little feedback was given. Started on my own because team members would not respond" (online).

"Communicating mainly by text message made it difficult to assess feel and urgency [sic]. This caused miscommunication. It was difficult completing the work with only two members, as the workload was increased" (online).

## 5. DISCUSSION AND LESSONS LEARNED

The purpose of this study was to identify student perspectives, particularly challenges, they encountered with group work. For this study, the type of group work included 4-5 person groups where students identified two business problems, recommended business solutions to those problems using information systems, and wrote a business proposal.

The main finding was that students considered lack of communication with their group members to be their largest hindrance. There was no difference between face-to-face and online students. Both groups equally identified communication problems. When students complained of lack of communication, they meant not having enough communication with group members, not having enough interactions, initiating communication at the last minute, the low quality of their discussions, the lack or poor generation and evaluation of ideas, and having conflicts with their peers with no resolutions. We also found that students chose texting as their technology for communication. However, findings showed that some students referred to texting as a poor tool for communication. Among the students who reported having effective communication, several mentioned the use of GroupMe app, Skype, and conference calls as the technologies they used.

In some instances, the lack of participation by some group members led to a lack of communication in terms of quantity and quality. Lack of participation is distinguished from lack of initiative as follows: Initiative is defined as taking action independently without being assigned. Participation is being involved in the process regardless of whether the task was assigned by someone else or not. Conflicting schedules was another hindrance students experienced. Some students shared that they were busy with work and family. This impacted the availability and frequency of their communication. Findings also revealed that students experienced more problems during the first phase of the project than in subsequent weeks.

### Changes to make to future course offerings

As educators, we have a responsibility and opportunity to help students overcome inter-group communication challenges. Doing so will give students a valuable skill to take into the workforce. The instructors of this course opine that a subset of College of Business students has not learned how to effectively communicate in

groups despite having taken two semesters of English classes and experiencing other group projects in other classes. Teachers may form group projects with the assumption that students know how to work in groups and do not teach group collaboration (Gueldenzoph Snyder, 2009; Riebe et al., 2016). Many students are not prepared for communicating or collaborating in real-world teams.

As a post-reflective activity, instructors searched the research literature for solutions to group communication challenges. Oakley, Felder, Brent, and Elhajj (2004) recommended using learning activities early in the semester to introduce group work skills before the group project such as forms and handouts as exercises. This type of activity could introduce students to communication processes and potential problems of teams. Research also showed that practice exercises at the beginning of the course could foster group work and communication skills (Ekblaw, 2016; Roberts & McInnerney, 2007). Gueldenzoph Snyder (2009) reviewed business communication literature to identify team building exercises which could be adapted to academic learning.

Ekblaw recommended instructors assign functionary roles to each team member rather than letting teams figure out what needs to be done by whom. One team member could be responsible for facilitating communication and resolving conflict among the team. In online classes, Lowes (2014) recommended structuring the group project so that students could work on their parts asynchronously and independently. Students still cooperated but would depend less on synchronous collaboration.

Based on instructors' reflection, student comments to the survey, and the findings from the literature, the following are curriculum changes we will implement in future group work.

1. Introduce the group project earlier in the semester. Share an instructor-led video explaining what the group project is and why the project is important to the student's learning. The introductory video can focus on which skills students can learn/improve and how they can apply those skills in the real world.
2. Organize teams earlier in the semester, instead of at the start of the group project. Have each student record a video of themselves to share with the team. In the video, they discuss their strengths and weaknesses and what kinds of skills they can contribute to the group project

(Oakley et al., 2004). This information will allow group members to get to know each other and to set expectations before the group project begins. Based on this information, students can assign functionary roles to each team member as discussed by Ekblaw (2016).

3. Use mini-activities before the group project to help the teams learn to communicate effectively. Activities can be weekly, small goals that direct the team to use collaboration software and project management software. Some ideas for these activities could include:

a. Scarfino and Roever (2009) suggested a card game called Diversity as the activity which can help build communication skills. Students are dealt five cards that represent styles of thinking/learning. Students select, exchange, or draw additional cards to identify the three cards that best represent their style of thinking/learning. The teacher explains the Whole Brain Model by Herrmann (1995). While cards work for face-to-face classes, an adaptation will be needed for online students. A discussion forum or worksheet may guide the student through the same exercise.

b. Gueldenzoph Snyder (2009) outlined a group learning activity as follows. In small groups, ask the students to discuss the pros and cons of group work. Ask students to discuss the purpose of the class project. Ask students to role-play positive collaboration, e.g., active listening, questioning, and restating techniques. Ask students to develop a timeline by reverse engineering a project. Train students to negotiate conflicts by asking students to role-play impartial methods to resolve any problem. This activity can be done with online students via team collaboration software or discussion forums.

4. Establish a set of group norms that will be used by each student. Have each group identify two additional group norms that they will utilize. Each group will decide how they will function as a group and how they will handle any constraints, such as lack of communication or participation. For example, the class norms can include the following:

a. Be prepared and ready to learn so you can support the learning of your group members

b. Be open to new ideas and ways of approaching problems shared by your group members.

c. Make sure to complete assigned tasks before the deadlines.

5. Require students to use specific technologies for communication and project

management. For communication, have students use the Slack app. Slack is a free, professional collaboration/communication tool. Slack allows for file sharing, a log of conversation, and the instructor can evaluate communication quality. Instructors can use the log generated by Slack to see which students are participating and which are not. Slack is available for mobile or web platforms. For project management software, have students use Asana. Asana can integrate with Slack. Asana allows tasks to be defined with deadlines and completion dates. This functionality can reduce miscommunication regarding who does what tasks and adds a level of personal accountability.

6. Instead of requiring one peer evaluation at the end of the project, have students evaluate their team members after each phase of the project. Establish a grading rubric that evaluates the student's communication effectiveness. Administer the communication rubric each week of the project, using the Slack logs as input. A communication grading rubric can have different criteria including frequency, quantity, and quality of communication.

## 6. CONCLUSION

Group projects can be a valuable experience in academics to apply knowledge, solve problems, and develop teamwork skills. These skills are requested by employers. However, students identify lack of communication, participation, collaboration, accountability and interaction as the most common problems experienced. We discussed several recommendations that should help resolve miscommunication and increase effective collaboration. We encourage instructors who use group project to adopt these recommendations.

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## Appendix A

Summarized data from the survey responses by students after experiencing the group project. The survey asked, "Check all the problems you encountered while working with your group this semester." Students could select from sixteen predefined answers that were adapted from Koh and Hill (2009). The students could also select "Other" as a response and free form an answer (see Table A1).

Table A1: Problems Students Encountered in Group Work

Challenge Description	% of Face-To-Face Students Expressing this Challenge (N = 52)	% of Online Students Expressing this Challenge (N = 68)
Lack of communication among group members	37%	32%
Lack of participation from group members	35%	25%
Lack of collaboration among group members	33%	22%
Lack of accountability of group members	33%	24%
Lack of interaction among group members	31%	26%
Lack of time management (group members)	29%	21%
Lack of understanding among group members	27%	24%
Lack of initiative from group members	27%	25%
Lack of time management (myself)	23%	16%
Difficulty understanding the goal of the project	21%	28%
Lack of feedback from group members	21%	16%
Lack of encouragement from group members	19%	15%
No problems encountered	15%	24%
Lack of a sense of community	13%	16%
Lack of feedback from instructor	10%	1%
Lack of group dynamics	8%	9%
Lack of leadership	6%	7%
Late to meeting	2%	N/A
Lack of motivation	2%	N/A
Confused about the project	2%	N/A
Difficult peer	4%	N/A
Different opinions	N/A	1%
Unequal distribution of tasks	N/A	1%
Too much leadership	N/A	1%
Miscommunication	N/A	1%
Communication method	N/A	1%
Problems with technology	N/A	1%

Note. The percentage refers to the number of students out of the total respondents for face-to-face or for online who expressed the complaint.

Participants answered an open-ended question, "Think about your overall current group experience in this class. What challenges did you encounter working with your group? Please explain." Participants reflected on the challenges they encountered and wrote their response in short-answer form. Researchers analyzed the responses into categories of problems (see Table A2 and Table A3).



Table A2: Challenges Encountered by Face-to-face Students According to Open-ended Responses (N = 52)

Challenge Description	% of Students Expressing this Challenge
Lack of Communication (e.g., lack of response or feedback from peers)	22%
Lack of Peer Participation	19%
Different Schedules (e.g., working adults)	13%
Lack of Accountability of Peers	7%
Poor Time Management	6%
Difficult Peer (e.g., peer who took over project, peer did not listen to other group members, difficult to reach agreement or consensus)	4%
Difficult to Meet	4%
Difficult to use consistent writing style/format	3%
Lack of Collaboration	3%
Lack of Understanding of Project	3%
Unequal Task Distribution	3%
Lack of Expectations	3%
Lack of Quality Work from Peer	3%
Group Too Big	1%
Burned out at the end of the semester	1%
Not using Google Docs	1%
Overall Organization of Project	1%

Note. A qualitative analysis of the open-ended question resulted in these themes

Table A3: Challenges Encountered by Online Students According to Open-ended Responses (N = 68)

Challenge Description	% of Students Expressing this Challenge
Lack of Communication (e.g., lack of response or feedback from peers)	34%
Different Schedules (e.g., different time zones)	24%
Lack of Peer Participation	18%
Lack of Accountability of Peers	9%
Time Management (Poor)	7%
Difficult to use consistent writing style/format	4%
Difficult Peer (e.g., peer who took over project, not being open to criticism, difficulty to reach agreement)	3%
Lack of Collaboration	3%
Figuring out how to delegate tasks	3%
Not Knowing Peers	3%
Lack of Motivation (Peer)	3%
Online Aspect	3%
Lack of Understanding of Project	1%
Unable to Meet In person	1%
Group Too Small	1%
Adapting to Peer Personalities	1%
Hard to Depend on Others	1%
Different Work Styles	1%
Having a Group Project in an Online Class	1%

Note. A qualitative analysis of the open-ended question resulted in these themes