

Running Head: ISSUES AND BEST PRACTICES OF VIRTUAL TEAMWORK

Issues and Best Practices of Virtual Teamwork

Term Project Paper

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Table of Contents

Introduction.....	4
Background.....	4
Purpose of Research Study.....	4
Conceptual Framework.....	5
Research Questions.....	5
Review of Literature.....	6
Methods.....	8
Research Settings/Context.....	8
Sampling Strategies & Sample Size.....	8
Data Collection.....	8
Data Analysis.....	9
Positionality.....	9
Use of Validity Strategies & Potential Threats to Validity.....	9
Possible Ethical Issues.....	10
Findings.....	10
Guidance for virtual teamwork.....	10
Team formation.....	12
Communication.....	14
Team Leader and Roles.....	15
Team Conflicts.....	16
Feedback.....	18
Comparison with Face-to-Face Teamwork.....	19

General Perspectives on Virtual Teamwork .....	19
Conclusions .....	20
References .....	22
Appendix 1 .....	24
Appendix 2 .....	25

## Issues and Best Practices of Virtual Teamwork in Online Learning Environment

### Introduction

#### *Background*

Nowadays, online learning or e-Learning has been unprecedented prevalent. The University of Central Florida is now offering 29 programs through the World Wide Web (WWW), ranging from undergraduate degree to master's degree (UCF Website, 2007). In Fall 2007, the University of Central Florida has offered 360 fully online courses (UCF Website, 2007). Growing with the number of the online courses that have been offered is the number of online instructions that involve team projects. The increasing reliance on technology makes more possibilities for teams to meet virtual (Criffith & Neale, 2001). Especially in recent years, the increase of virtual team use in both academics and business are explosive (Fiol & O'Connor, 2005; Piccoli, Powell, & Ives, 2004). Virtual teams overcome the limitations of time, space that traditional team faced. But they also face obstacles that traditional face-to-face teams do not have, such as the limited technical abilities to work on virtual teams and lack of collaboration skill in distributed environment.

#### *Purpose of Research Study*

The purpose of the research study is to explore the issues and best practices related to virtual teamwork and propose suggestions for improvement on the effectiveness of virtual teamwork.

### *Conceptual Framework*

According to Lipnack and Stamps (2000), a virtual team is defined as a group of people who work interdependently with a shared purpose across space, time and organizational boundaries using technology. Fiol and O'Connor (2005) further defined *virtualness* "as the extent of face to face contact among team members". They also differentiated teams into three categories: pure virtual, hybrid and face-to-face teams. For the purpose of this study, we consider both pure virtual and hybrid as virtual teams. Given virtual teams are relatively recent phenomena, there are major discrepancies between the available resources to increase the effectiveness of teachers who teach online and the resource available to instructors who teach face-to-face (Napier & Waters, 2001). Similar discrepancies also exist between students who work in virtual teams and those who work in traditional face-to-face teams.

Dede(1996) claimed that collaborative online learning can help get acquisitions of complex and higher level concepts and skills that have been a weakness of traditional non-interactive distance education. Slaven(1990) recommended using collaborative learning to develop an online community. Collaborative learning should include sharing learning task, combining expertise, knowledge, and skills to improve the quality of learning process. Virtual teams are just like a vehicle to achieve collaborative learning in distance education.

### *Research Questions*

The research study is seeking to answer the following three questions:

1. What are the issues and challenges faced by students working in virtual teams?
2. What are the best practices and strategies for student's learning through virtual teams?
3. What are the best practices and strategies for the instructor to facilitate student's virtual teamwork?

## Review of Literature

The review of literature revealed a number problems and issues related to virtual teamwork in distance education. For example, Shin (2005) states that without or limited face-to-face interaction, it is difficult for team members to receive guidance or instructions from supervisors or team leaders. Moreover, it gives fewer opportunities to clarify the role assignment.

Therefore, virtual team members are more likely to get into ambiguity. Another problem may be generated by culture difference. People from different cultures and different backgrounds vary in terms of their communication styles. They also differ in personality, which may cause communication conflicts in virtual teamwork.

Hogstede (1980) maintains that people from individualistic cultures emphasize on the need, values and goals of the individual than those of the group. Virtual teamwork implies that people from different background work together and they might have different perspectives to solve the problems, so how do team members get a consensus? Alpay (1998) demonstrates that if team members fail to at least negotiate some common ground, their problem-solving process will close down. However, Stahl (2001) determined “In education, such cognitive conflicting is seen a stimulus for knowledge negotiation and construction. Argumentation among participants in a collaborative learning situation is therefore stimulated. Yet, the balance between maintaining common ground is a delicate thing.”

In virtual team environments, assignments and projects can be worked out through self-direction and collaboration. So students normally have a resistance to rely on the input of others (Ko & Rossen, 2001). How can virtual teams be optimized by virtual collaboration so that members can really learn something and find the overall learning environment satisfying?

Another problem addressed by Jansen (2003) is that virtual team members tend to concentrate on project work and neglect their learning tasks. He stated that learners pay more attention on how to finish their assignment and neglect tasks such as reflecting on process feedback from others.

Successful virtual teams have certain characteristics and features that we will explain and to give some guidance on how to effectively work in virtual teams.

Based on a case study of collaboration in virtual team, Lewis (1998) identifies key factors for ensuring effective virtual teamwork, including: (a) social interaction to build trust and maintain motivation; (b) sharing tacit knowledge to build and maintain common understanding, again building trust and reducing feelings of exclusion; (c) leadership styles that change according to different situations; and (d) explicit member roles and responsibilities.

Lewis (1998) also states that trust is a crucial element in developing effectiveness in virtual teamwork. He suggests in order to creating a good start for a virtual team, members need to trust each other and they need to meet in person at first. Hackman (1990) described the effectiveness in virtual teams in three criteria's: deliver on objectives, meet the psychological needs of its members and work together in the future.

Lack of feedback or delays in receiving feedback from instructors may cause students frustration or anxiety which affects the team effectiveness (Hara & Kling, 2000). Team members and team leaders also need to work together in sharing resources, helping each others solve problems; providing encouragement, and responding to requests promptly.

Establishing effective communication is essential for learning in virtual teams. There are some recommendations for effective online communications: (a) team leaders should specify clear role assignments and requirements before starting the project; (b) ask questions when

messages are unclear; and (c) encourage open communication which means we can incorporate informal communication, humor and honest communication.

## Methods

### *Research Settings/Context*

This qualitative research study, a collaborative work of three researchers, focuses on individual experiences in the hope to identify the common issues and best practices of virtual teamwork in online learning environment. This study is also seeking any suggestions and personal opinions toward successful virtual teamwork from the participants. The study was conducted within the College of Education, University of Central Florida. Most of the participants are graduate students in Instructional Technology program. They all have some experiences of taking online courses and working in virtual teams.

### *Sampling Strategies & Sample Size*

In total nine participants took part in this study. Convenience sampling and criterion sampling strategies were employed for this study. Participants with virtual teamwork experience were recruited among the friends, coworkers, and classmates of the researchers.

### *Data Collection*

Interview was the method used in this study for data collection. Each interview took 25-35 minutes depending on the participant's involvement. Offices, conference rooms and student labs in both Teaching Academy building and Education Complex building were used as the interview site. Digital voice recorders and notebooks were used to assist data collection during the interviews. Before the interviews, informed consents were collected from the interviewees.

Right after each interview, the researchers worked out the transcriptions with Microsoft Word and added notes for the improvement on next interview. The recorded interviews were kept until the end of the study. After all the interviews are done, the researchers brought all the transcriptions together and co-worked on data analysis.

### *Data Analysis*

The transcriptions of interviews were first loaded into Atlasti for coding. The quotations and codes were then output into Microsoft Word document and categorized into eight categories. Each researcher worked individually on the output document first to find emerging themes, then, they sat together to combine their individual results for deeper analysis. The final findings are based on the agreements of all researchers opinions.

### *Positionality*

Being students themselves, the researchers all have their own experiences on virtual teamwork, both successful and not-so-successful. In this study, the researchers are trying to look at virtual teamwork through the eyes of the learners. How do they feel about virtual teams? What are the good and bad aspects of virtual teams? Why do they like it or dislike it? What can we learn from them so that other people will not need to fail the same failure? This study was conducted to seek the answers to these questions.

### *Use of Validity Strategies & Potential Threats to Validity*

To promote the validity of the research, researchers applied the following strategies:

1. Prolonged engagement and persistent observation - All researchers are current doctoral students and they all have experienced virtual teamwork. The researchers have been in

the environment for a long period of time, and have built trust with research subjects.

They are also very familiar with the culture of the environment.

2. Triangulation - The research involves three investigators with different background and perspectives over the topic.
3. Member checking - Researchers have shared interview transcripts and analytical thoughts to make sure they are representing the participants' ideas correctly.

In spite of the validity strategies that the researchers incorporated in the study, there might be potential bias that would possibly threaten the validity of the research since all researchers are studying in the same environment with the research subjects and may have built strong trust or distrust with the subjects.

#### *Possible Ethical Issues*

The research study was approved by the Institute Review Board (IRB) of the University of Central Florida and researchers have followed all the codes that required by the IRB. One of the possible ethical issues is that the research findings might contain information that could damage the image of the school that the researchers are currently studying at, which could challenge the decision making of the researchers to publish the research findings.

#### Findings

Research findings will be reported under the following 8 categories obtained from the available data.

#### *Guidance for virtual teamwork*

Generally speaking, students received very little guidance as how to work in a virtual team from the instructor not to say formal instruction on this topic. One respondent said: "We

had from our instructors suggestions for how to meet or how often to meet, we got some tips, little, not anything.” Another one said : “There’s not been a formal unit or lesson on proper practices or best practices for teamwork.”

In summary, guidelines mentioned by one or other respondents include how to use chat room, how to make the team visible by creating a team homepage, how and how often to meet, and what communication tools to use. However these guidelines are far less than enough for students to have effective virtual teamwork. What’s even worse is that some respondents didn’t remember to have got any guideline from the instructor or anyone else. Obviously, instructors neglect the importance of the instruction of teamwork guidelines to students and are reluctant to spend time on it. It is probably because instructors take it for granted that students have acquired sufficient skills for virtual teamwork, or because they think the guidelines are common senses, or because they don’t regard it as their responsibility. In addition, one respondent said: “We actually had the guidelines on how to work on teams, but we need to find it from Internet resources.” Compared to those receiving very few or no guidelines, student who are required to find the guidelines by themselves are in a better condition, for they have at least been aroused the awareness to search for the guidance of teamwork.

The findings of the study by Napier and Waters (2001) indicate that educators who teach online graduate courses and assign online teach projects should consider integrating online teambuilding instruction into their coursework. So, instructors should implement teambuilding instruction which is beneficial for student teamwork.

When asked about what guidelines to expect from instructors, one respondent expressed his desire to know something about conflict solving and hoped instructor could raise his awareness of the possible conflicts by showing some examples.

I personally feel that the instructor should first of all tell us how to avoid the conflicts and divergent opinions in teamwork. If he can show us some relevant examples of the conflicts and their consequences, we may get ready for the conflicts that could happen later in our teamwork.

Some respondents emphasized their expectation of instructors' help with technology tools, which corresponds to the statement by Duarte and Snyder (1999) that teamwork training should also include technical support and technology training on the hardware and software used to support online teamwork. There were also some respondents who said they didn't care about the teamwork guidance. Since not all the students need it, instructors could conduct optional teamwork training. .

### *Team formation*

Based on respondents' reply, teams are usually formed in two ways: instructor's assignment and student's free choice. In most cases, students are allowed to choose their team members by themselves and some are prone to work with acquaintances or someone they have worked with before. If they don't know anyone in the course, they would like to know something of others before making a team. It seems that some instructors would help them to get to know each other:

At the beginning of the course, the instructor suggested post brief descriptions of ourselves especially related to strengths and weaknesses. So when you make a team, you have to get others who have strengths that you don't have. So you make a balance in your team.

In my mixed mode class, we had face-to-face meeting at the first class. We saw each other and talked about our similarities and differences and tried to form a team.

Requiring students to post a description of themselves with their strengths & weaknesses and setting a face-to-face meeting at the beginning both are good strategies to help students form a balanced team. In addition, it is very common among instructors to request students to introduce themselves on bulletin board and respond to others at the beginning of the course. Some respondents supported the use of bulletin board for getting acquainted with each other and considered mental contact more important than physical contact, while others still preferred face-to-face meeting at the beginning: "It's sometimes best to have them around and you can observe them and see them in a natural setting then that will give you an idea what they work like."

No matter what strategies to adopt, instructors should provide students opportunities to know each other before asking them to choose their partners.

As for the preference of team formation methods, one respondent said that she didn't like random assignment: "In my opinion, it is not a good idea for the instructor to put students randomly into groups, because you don't know what strengths each student has."

Some respondents articulated their dilemma in distinguishing one from another, because both random assignment and free choice had its own advantages and disadvantages.

People get a habit of working with the same people. I would like to mix up the groups sometimes, so I think the only way this might happen is we were assigned. So it might be ok to be assigned sometimes. But I like being able to choose.

I like random assignment, because there are students from different countries in the school, but sometimes American students would more like to work with American students and Chinese students will prefer to work with other Chinese students.

Apparently, random assignment ensures group diversity and enables students of different ethnicities to work together. But at the same time respondents expressed their concern of being

assigned to a bad team. When doing team assignment, instructors should try to make a balanced team based on students' background. One respondent shared her favorable experience of being assigned to a team: "In that class we were assigned to teams. We had students of different years in the program. And she tried to pair some of the more experienced team members with some of the less experience students."

Team size usually depends on the project. For the project of a course, most respondents said 3 or 4 was their ideal number of people in a team, because larger size would lead to more conflicts and smaller group would not have enough collaborative thoughts.

### *Communication*

The collaborative tools used by respondents include email, discussion board, chat room, MSN, and telephone. Just like one respondent said, every tool is suitable for certain tasks:

I think email is good for just sending information. And bulletin board is good for response because it allows you to see multiple people's responses. Chat room is good for discussion. So I think each form of communication has its expenses.

Although a variety of tools are used, asynchronous tools such as email and bulletin board play a dominant role in students' distance communication.

In spite of the fact that a lot of communication tools are available, students still feel the necessity of occasional face-to-face meeting when the task is difficult or has technology components:

It depends on the difficulty of the project. One of the assignments was a statistic class and that requires use of software, the SPSS software, so we'd usually meet to put together the actual paper aspect and that was more involved project. When there was a smaller project, we didn't meet face to face. But I guess for a large project.

It may be much more efficient to explain how to run SPSS in face-to-face meeting.

Additionally, some respondents had face-to-face meeting sometimes because of the downsides of email:

Sometimes, the information that you try to convey via email or other electronic tools will deviate from what you really want to say. The interpretation of certain words will vary from person to person.

I think sometimes email cannot convey like emotions, or can't convey like expectations.

So I think that the very first face-to-face meeting, even if it's the only one is very vital.

We level the ground so we are all on the same level so we can work from there.

Maybe students don't have the capability of using audio-visual synchronous tools such as teleconferencing, so they still have to meet face-to-face to solve the problems jointly that written communication could not make.

### *Team Leader and Roles*

In our interview, all of the participants agree that there should be a team leader to guide the process along. The team leader was identified as someone who can assign the roles, initiate the discussion, mediate the conflicts, remind the deadlines and compile each member's work to get the whole project done. The responses to the interview question, "Do you like a team leader in your team?" are shown below:

- "I think there should be a team leader who will be in charge of assigning tasks, initiating discussion. If there is no team leader, team members will have different opinions and may have conflicts."

- “I think in classroom setting, it helps to guide the process along and probably it is because we so used to have an instructor. When you get into a team, you are still looking for some person to play the role.”
- “It is necessary to have a leader to make an effective team”
- “However, in virtual team, the role of team leader is more dynamic, the responsibility rotate, each member will lead on one of the assignments.”

To better understand the way the team leaders were selected, they were asked to respond to the question “how do you usually choose your team leader?” Out of nine interviews, four of the respondents claimed that the team leader emerged during the process, three students reported that their team leaders were volunteers, and two interviewees said they took their turn to be the team leader. The typical answers are shown as below:

- “In fact, we don’t choose our team leader. Team leader is the one who takes the role of leader during the process and other members begin to take him as team leader.”
- “We just selected or someone said I will do it.”
- “The responsibility rotates, if there are four assignments, and then each member will lead on one of the assignments.”

### *Team Conflicts*

Based on our literature review, a lot of studies suggested that without or limited face-to-face interaction, students in virtual team are more likely to get into ambiguity. In order to better understand the students’ social interaction needs, we asked the following questions:

- “Have you ever experienced any team conflicts?” “How do you usually come to a consensus?” and “How do you deal with the slacker?” The interviewees seemed more excited to talk about these questions. The responses of the team conflicts can be

categorized to the following ideas: different opinions, blame each other, hard to get censuses; some person lags behind or did not put any contribute to the teamwork.

In response to the question “how do you usually come to a consensus?”, the interviewees addressed the next following solutions: go to the most popular one; take advantages of everyone’s strength; compare pros and cons. One of the interviewees mentioned a very good point:

People have different strengths; we need to get use of this kind of strength. If someone is very good at web design, let him do your team presentation page; if someone is very good at editing, let him go through the final copies; if someone is very good at doing research, let him guide the research process. Let people feel they are very unique in the team and they do some contributions.

Slacker refers to someone who did not contribute to the team project and count on others to complete assignment, which is a very typical problem in virtual team. Some interviewees addressed this problem and we continued to ask them “how do you cope with the slackers?” One of the students claimed:

When you have some person lagging behind or did not work on the project, you need to contact him/her using a nurturing way, email or call them and say ‘what’s going on?’ ‘Are you OK?’ Try to get them work with you. Let them feel as a part of the team. They need to concern to get the work done.

Another said: “We would let the team leader talk to the person nicely, if still no response, we will make up that work for him/her.” Based on the interview responses, we find out that the team conflicts did not arise from the task difficulty. Most of them stemmed from a lack of motivation to participate, inappropriate communications, and different opinions.

### *Feedback*

Virtual teams have unique features compared to traditional teams in terms of the team interaction. Team members collaborate from a distance through technology. Based on our literature review, instructor's feedback can foster team interaction and collaboration. In response to the question: "What is your experience of instructor's feedback on your team work?", there are the following opinions:

- "I think feedback is really helpful to us to understand the project and assignment. Normally instructors provided feedback through email, rubrics, they will highlight the aspects of rubrics that they think team had met and at the bottom they provided comments regarding to the overall project."
- "Generally, the instructor seems to create one template and use all of the teams. Adding points or remove points to fit each team, to personalize each team report."
- "The virtual teams I worked, instructor gives us some feedback which is helpful for our product, but he did not give us feedback on the teams."
- "Most of time, I think instructors go through the whole group work but they don't know much about each member's contribution."

When researchers asked the question: "how would you like the feedback to be.", one student talked she really liked constructive feedback which instructor addressed problems and specific points on how to improve the project. Another student mentioned he liked the way that instructor met with each team member to talk about the project and got to know what's going on.

It appears that students have realized the importance of the instructors' feedback and desire for feedback that not only addresses the project but also team members' performance.

*Comparison with Face-to-Face Teamwork*

On one side, compared to traditional face-to-face teams, virtual teams can be more effective and efficient in some situations because of the flexibility and timeliness of online communication, but on the other side, communicating through instant messengers or emails can be extremely ineffective. One interviewee specifically pointed out that “with face-to-face we can brainstorm and within an hour we could have more than what we can get from chatting online for three hours”. However, most of the interviewees agreed that the overall virtual teamwork effectiveness depends on the types of the project and the personalities, skills, and experiences of the team members.

*General Perspectives on Virtual Teamwork*

Although people’s perspectives toward virtual teams differ from one to another, some of them have found working in virtual teams “rewarding”, “more productive”. It “has always been good experience”, can “get more things done” and “get very quick response”. Even those who “generally do not like them” acknowledge that there are “practical benefits of having virtual teams” because of the flexibility that allows them to meet with their teammates anywhere and anytime. It is especially helpful around assignment’s deadline. Team members who have difficulties to meet frequently can “talk every night” over MSN Messenger “when the deadline approaches soon” so that they can finish it on time.

There are also some issues that most of the interviewees experienced in virtual teams. One of the problems or frustrations that they often have is with the team members who lack technical ability. It is also hard to work with somebody that you never met before. It is hard to establish personal connection through online communication due to the lack of facial expression and body languages. It is suggested that web cam and video conferencing can be used to

complement instant messaging and emailing to convey non-verbal cues and promote personal connection.

### Conclusions

This study pinpointed some problems hindering the smooth flow of virtual teamwork and brought forward some best practices for instructors as well as students summarized as below.

The problems identified with students in virtual teamwork include: 1) A lack of motivation to participate on virtual teamwork, 2) A lack of specific guidelines on technology use and how to collaborate in virtual teams, 3) Limited use of synchronous, audio, visual communication tools, and 4) Difficulty in establishing personal connection via text-based tools such as email and instant messenger.

Some of the best practices and strategies for students encompass: 1) Keep the technology in align with project and team need; 2) Clearly identify the team roles and timeline for the project; 3) Respect individual team member; 4) Shift the role of team leader to each member who has different strengths; 5) Communicate with members frequently and clearly; 6) Approach as a team and kindly remind the person who is not contributing.

Best practices and strategies for instructors generated from this study consist of : 1) Conduct optional teamwork training including technology instruction; 2) Encourage students to work with different people; 3) Take students' background information into consideration when assigning students into teams; 4) Assign students into teams of 3 or 4; 5) Provide opportunities for students to know each other before team formation; 6) Encourage students to use audio and visual communication tools; 7) Provide team member evaluation forms to encourage students involvement in teamwork; 8) Provide smaller deadlines for the teamwork project; 9) Keep an eye on each team's progress to facilitate and motivate students learning in virtual teams.

The outcomes of this study have very practical significance. Those best practices for instructors and students will definitely improve the effectiveness of virtual teamwork.

### *Implication*

The research findings have the following 2 implications: 1) students still have many problems with their virtual teamwork; 2) instructors could intervene to help students improve their virtual teamwork.

### *Future Research*

“Virtual teamwork” in this study refers to students’ teamwork in traditional face-to-face class, mixed mode and totally online class as long as it involves online collaboration. Future research may just focus on virtual teamwork in totally online course.

Among the 9 participants of this study, the majority of them are Americans and 2 are Asians. The data collected indicate they have somewhat different opinions over a few aspects of virtual teamwork. Future research study could compare the differences between Americans and Asians in virtual teamwork.

Additionally, this study found that students lack the motivation to participate in virtual teamwork. In future research, researchers may search for the reasons behind it and the ways out.

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## Appendix 1

This project was our first experience of conducting qualitative research. The overall process was delightful but there were certainly frustrations involved. We didn't have much trouble interviewing our research subjects since we used convenient sampling method and are familiar with the interviewees.

The first difficulty we had was transcription. Although we understand that transcription is one of the most important steps of qualitative research, we also found it is one of the tedious and time-consuming ones. We tried hard to capture everything we could from the voice recorder but there was certain information we could never retrieve from the transcribed manuscript. Those non-verbal cueing, emotions and tones would be lost during the transcription.

Another frustration we had was the data analysis process. Our group first decided to use Atlasti to analyze the data because we thought learning a new tool is never a bad idea. However, the limitation of only 50 codes from the demo version, the inexperience with the software and the top-down analysis mode, which contradicts to our only previous experience have caused a lot of confusions and frustrations. Some of us had to give up Atlasti and code manually. And we finally reversed the analysis process back to the bottom-top mode.

We also had questions on how to come up the themes from the categories that we've already had. What is the relationship between categories and themes? Which one should we do first? As we go through the process, the answers to these questions started to appear but we might need more practices to become real practitioners of qualitative research.

## Appendix 2

There are some limitations in this study. One is the sampling method: the selections of participants were selected from those people who did work in virtual teams before. The reason for use purposeful selection is that only those people who had virtual team experiences would provide the necessary feedback. Also the convenient sampling was employed in this study. The participants were chosen from the friends, classmates of the researchers. This may due to the short time of data collection for this research study. All of participants come from the college of education of one university, which may directly affect the generalization of the research results. Another limitation of this study is that we did not conduct pilot study for the research questions, which may affect the validity of the research questions. In addition, we are a group of novice researchers; we had little ideas of the qualitative research process until we undertook this research.

Again this is our first formal qualitative research study. From this process, we learned how to develop interview questions; how to conduct interview; how to do transcriptions, how to analyze data and finally report our findings.