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Team Members' Perceptions of Online Teamwork Learning Experiences and Building Teamwork Trust: A Qualitative Study

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Abstract

Teamwork factors can facilitate team members, committing themselves to the purposes of maximizing their own and others' contributions and successes. It is important for online instructors to comprehend students' expectations on learning collaboratively. The aims of this study were to investigate online collaborative learning experiences and to identify important factors that were crucial for building teamwork trust. A qualitative research method was utilized in the study. Data were collected from students' responses of three open-ended questions and interviews. The results indicated that students who enjoyed working in the group setting had a good relationship with their team members and they trusted their team members. In contrast, the questionable behaviors of members (lack of communication and low level of individual accountability) were negative factors of their teamwork experiences. In addition, students considered individual accountability, familiarity with team members, commitment towards quality work, and team cohesion were important factors for building trust with team members. Quantitative analyses confirmed that teamwork trust was correlated significantly with two of the important factors for building trust indicated by team members: familiarity with members ($r = .74$) and team cohesion ($r = .79$). Implications and recommendations for future research were also discussed.

Keywords: distance education and telelearning; cooperative/collaborative learning; teaching/learning strategies; adult learning; learning communities

1. Introduction

1.1. Online collaborative learning

Collaborative learning is an instructional strategy that encourages students to work in a group toward the same goals (Brindley, Walti, & Blaschke, 2009). In collaborative learning, students engage in their own knowledge construction by integrating new information and knowledge networks into a learning community. Schrage (1990) described collaboration as a "process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously processed or could have come to on their own. Collaboration creates a shared meaning about a process, a product, or event" (p. 40). Students learning collaboratively as a team can gain their skills on problem solving, social interaction and communication, positive attitude toward learning, and critical thinking (Law, 2011; Lehtinen, 2003; Nam & Zellner, 2011; Srinivas, 2008). Despite the advantages reported in literature about collaborative instructional strategy in terms of social and psychological benefits (Amhag & Jakobsson, 2009; Biasutti, 2011; Panitz, 1999), students can feel a high level of frustration in online collaborative learning activities (Capdeferro & Romero, 2012). Capdeferro and Romero's study found that difficulties in communication, the lack of shared, and the imbalance in the level of commitment could lead students to frustrations. The poor problem-solving and decision-making skills, and relationship conflicts could threaten the success of the collaborative learning process (Korkmaz & Yesil, 2011).

1.2. Online teamwork processes

Different teams have their own unique processes intended to improve the effectiveness and productivity needed for achieving the team's goals. Team processing exists when team members concentrate on completing the task and know how well they are achieving the goals and maintaining effective working patterns. Johnson and Johnson (2000) defined team processing as "reflecting on a group session to (a) describe what member actions were helpful and unhelpful and (b) make decisions about what actions to continue or change" (p. 113). In other words, all members should work together to identify and clarify their own cooperative patterns over time. When the team's processes reach the most appropriate condition and all members work on mutual accountability, the team can get on with the task on hand quickly and consistently to get the job done effectively. Marks, Mathieu, and Zaccaro (2001) defined teamwork processes as "members' interdependent acts that convert inputs to outcomes (e.g. product development, rate of work, team commitment, and satisfaction) through cognitive, verbal, and behavioral activities directed toward organizing taskwork to achieve collective goals. Centrally, teamwork processes involve members' interacting with other members and their task environment (e.g. expertise and instructional equipment)" (p. 357). Teamwork processes can promote students' critical thinking, help them make better decisions in problem-solving situations by sharing different experience and expertise, and enable them to clarify ideas and keep on the right track through discussion and debate. Teamwork processes are vital for the long-term effectiveness of the team.

1.3. Online teamwork trust

Traditionally, trust is assumed to build gradually within teams over time based on an individual's cognitive assessment of the other person's behavior (Robert, Dennis, &

Hung, 2009). However, the lack of shared social context and limitations on personal interaction and communication among team members in virtual teams decrease the potential for trust. Trust on a collaborative level is more complicated and more pivotal than dyadic trust because the collaborative relationships involve multiple trustees, each with different attributes. Cummings and Bromiley (1996) asserted that a person trusts a group when he or she believes that the group "(a) makes a good-faith effort to behave in accordance with any commitments both explicit or implicit, (b) is honest in whatever negotiations preceded such commitments, and (c) does not take excessive advantage of another even when the opportunity is available" (p. 303). In this study, trust is defined as "an emergent state comprising team member intentions to accept vulnerability based on positive expectations of the intentions or behavior of the members of the team" (Kiffin-Petersen, 2004, p. 39). Teamwork factors can facilitate team members, committing themselves to the purposes of maximizing their own and others' contributions and successes. In the aspect of building trust among teammates, those who trust each other feel that they are working towards the same goal and are making their best efforts to promote successful teamwork if they earn the trust from one another. Trust among teammates may be built "through sharing one's thoughts, ideas, conclusions, and feelings and having the other group members respond with acceptance, support and reciprocation of disclosures" (Johnson & Johnson, 2000, p. 32). Good communication among team members comes with good team spirit, building this "all-in-the-family feeling", and there is a good team performance culture (Hill & McShane, 2008). In addition, a team with high level of trust is more likely to see the spirit of cooperation and information sharing among members (Peters & Karren, 2009), even with low level of shared expertise

(Curşeu & Schruijer, 2010; Jarvenpaa & Leidner, 1999). In term of team cohesion, O'Reilly, Caldwell, and Barnett (1989) defined it as "attraction to the group, satisfaction with other members of the group, and social interaction among the group members" (p. 22). Team cohesion allows team members to bind together, communicate more effectively to coordinate their efforts (Deutsch, Marcus, & Brazaitis, 2012), and enables the group to remain intact and productive in spite of difficulties, which in turn promotes trust.

1.4. Aims of the study and research questions

The aims of this study were to investigate online collaborative learning experiences and to identify important factors that were crucial for building teamwork trust from individual member's perspective. The research questions that guided the investigation in this study were as follows:

1. What are team members' perceptions of online teamwork learning experiences?
2. What are team members' perceptions of building online trust experiences with their teammates in the collaborative learning environment?

2. Method

2.1. Participants

The participants were fifteen graduate students who were enrolled in an instructional design online course at a mid-west university in the United States. Among the fifteen participants, twelve were females and three were males. In addition, twelve students were working toward their master's degree and three were working toward their doctoral degree. Only three students indicated that they had participated in an online collaborative learning environment.

The instructional design course has been offered as an on-line course and taught using collaborative instructional strategy since 2002 at this university. It is a 15-week course designed to teach students how to create effective, efficient, and appealing self-paced instructions. Each team was required to complete four design documents and one self-paced instructional unit. Those five projects were each due in every three weeks. The estimate hours needed for teams to complete each assignment were six hours. Maximum possible score of Project 1 was 10, Project 2 was 15, Project 3 was 10, Project 4 was 5, and Project 5 was 15.

During the first week, the course instructor randomly assigned three or four students to each collaboration team and four teams were consequently formed. Team 1 (Cate, Cindy, and Doris) consisted of three students and they were all from the same academic backgrounds (Educational Technology). Team 2 (Jessica, Mary, Sam, and Tiffany), Team 3 (Betty, Martin, Sally, and Susan), and Team 4 (Catherine, Chris, Debra, and Diana) consisted of four students with diverse academic backgrounds. All participants received an e-mail notice from the researcher with the consent form describing the purpose of the study, researcher's contact information, and time (15 to 20 minutes) to fill out the questionnaire. Pseudonyms were used to maximize anonymity of the participants' identity. See Table 1 for the information of the fifteen participants.

----- Please insert Table 1 about here -----

2.2. Data collection procedures

During the last week of the semester, all team members completed the *Teamwork Dynamic Scale* and three open-ended questions regarding their opinions on virtual team learning experiences. These questions were: 1) Did you like or dislike learning in an online collaborative setting (working in a group)? Why or why not?; 2) What are some

positive things about online collaborative settings?; 3) What are some negative things about online collaborative settings? Furthermore, the researcher conducted individual face-to-face or phone interviews with eleven participants from the four virtual teams. The interviewees were three participants in Team 1 (Cate, Cindy, and Doris), three participants in Team 2 (Jessica, Mary, and Sam), two participants in Team 3 (Martin and Sally), and three participants in Team 4 (Catherine, Chris, and Diana). Interviews were semi-structured. The individual interviews were tape-recorded and each interview lasted approximately 30 minutes.

2.2.1. Interview questions

The interview questions were:

Q1. Were you comfortable with the group setting of this course?

Q2. What was the best teamwork experience for your team?

Q3. What was the worst teamwork experience for your team?

Q4. Did your team have any problems working together? If yes, please describe them.

Q5. How did your team members build trust with one another?

Q6-1. Do you think trust is important for an effective teamwork experience?

Q6-2. If yes, what components are needed to enable team members to trust each other?

2.2.2. Qualitative data

A qualitative research method was utilized in the present study. Qualitative data are "detailed descriptions of situations, events, people, interactions, and observed behaviors; direct quotations from people about their experiences, attitudes, beliefs, and

thoughts; and excerpts or entire passages from documents, correspondence, records, and case histories" (Merriam & Simpson, 1995, p. 157). Qualitative data collection techniques require data source triangulation which refers to using multiple investigators, multiple sources of data, or multiple methods to confirm the emerging findings and to provide corroborating evidence (Ely, Anzul, Friedman, Garner, & Steinmetz, 1991; Merriam, 1998; Miles & Huberman, 1994). Two different qualitative data sources were used for this study including: interviews and answers to three open-ended questions.

2.2.3. Teamwork Dynamic Scale

A teamwork dynamic scale was developed to measure the factors of teamwork dynamic that included: communication, familiarity, trust, and cohesion. To measure teamwork trust, Jarvenpaa and Leidner's (1999) high reliability instrument of trust that consists of nine items was adopted and used. Some items in the instrument are: "I can rely on those with whom I work in this group," and "We are usually considerate of one another's feelings in this work group." In addition, twelve survey items were created by the researchers to measure the degrees of communication, team members' familiarity, and team cohesion. Some items in the survey are: "There is a close attachment to the team," "We enjoy working together," and "Getting to know one another in my team allows me to interact with teammates more efficient."

2.2.4 Data Analysis

The two research questions were answered by examining the interviews and three open-ended questions. A thematic analysis was conducted to code and analyze this data. The purpose of this analytic technique was to synthesize data as a whole from a thematic point of view and to decide how much data supported emerging themes (Merriam, 1998).

In an attempt to look for emerging themes in the findings, the researcher constructed and named categories that captured some recurring patterns from the transcripts of the responses to the open-ended questions. In addition, the descriptive analysis and multivariate correlational analysis were conducted to analyze the quantitative data collected from the *Teamwork Dynamic Scale*.

3. Results

All participants' responses from open-ended and interview questions were categorized into three aspects and included positive attitudes, negative attitudes, and team member dependence. All three members in Team 1 indicated that they had positive attitudes toward working together as a team. One team member in Team 2 indicated that she had positive attitudes while another team member indicated that she had negative attitudes toward working together as a team. The other two members in Team 2 indicated that their perceptions toward online collaborative learning depended on their team members. For Team 3, all four members indicated that they had negative attitudes toward working together as a team. For Team 4, all four members indicated that their perceptions of online collaborative learning, again, depended on how they got along with their team members.

Four participants from Team 1 (T1) and Team 2 (T2) had positive comments. Doris (T1) said, "[The other two members] and I worked very well as a team and I thought working collaboratively was a definite benefit" Cate (T1) said, "…working in a group can promote the quality of assignment." Cindy (T1) said, "In this case it worked once we had three strong working members. This group was very helpful in getting the project done." Mary from Team 2 said, "It took a while [for us to work effectively as a

team], but we finally got it going….Everyone has different skills and experiences, groups

allow for each person to share their expertise" and "I like the convenience of learning at

home in front of my computer and not driving 40 miles each way to get instruction. The

course is readily adaptable to the online format."

Betty, Sally, and Martin from Team 3 had negative comments regarding their team

work experiences. Betty said, "I think that the most frustrating part for me was the

inability to interact face-to-face with my group members. Online collaborations are

difficult when you've never met someone." Sally, who had negative attitudes toward

working in a group setting, expressed her thoughts:

> I didn't like online collaborative setting, because I thought it was very hard to
> keep track of what others have been doing and fix what they created. It was also
> challenging to push them to do their best or spend more time on the assignments
> to create an effective piece.
> Although the group worked on the same puzzle, it doesn't necessarily mean that
> they put equal amount of contribution and effort. Someone contributes 80%,
> someone does 8%. I felt that I did contribute the most and some pretended to
> contribute, in fact they did not. To see this inequality was frustrating for me.

Martin also remarked on his thoughts:

> I only disliked the online part of working in a group. Generally group work, as
> long as everyone contributes, can enhance the learning experience and the product
> created generally will be of higher quality then if done individually. The problem
> lies with trying to effectively communicate with group members only using online
> sources because it becomes extremely difficult to contact people when a problem
> arises with the project or the problem is fixed but with no notification of the
> problem being solved. This makes the process of creating a group project
> frustrating at times.

Overall, six participants thought that they would be comfortable with teamwork

experience as long as their team members have a high level of individual accountability.

Mary from Team 2 indicated, "Group dynamics are an interesting and often not optimal

thing. Some groups just don't 'gel' very well. Usually one member is lagging behind,

people put off work until the last minute then it looks slipshod." Chris from Team 4 also

said, "I'm OK with group activities, but in this class, virtually every grade and

assignment was dependent on group interaction." In addition, Diana and Catherine shared

their thoughts:

> I work in collaborative groups all the time in my profession, however, I am the project lead and I hand select my cohorts. I do not enjoy working with team members that I don't feel are up to par. Just getting put in with a group of people that have varying levels of, well, everything goes much against my grain! (Diana, T4)

> I did get really lucky with [my other two team members] and they were GREAT group members. If it weren't for them and our work ethic, our end result would have been much different. Trying to share, strategize, brainstorm, edit, create, etc. are all things that need to happen in person….The three of us often would work through the assignments and gain understanding from each other. We could face challenges as a team rather than alone. It was also great that everyone could contribute their own strengths and expertise. (Catherine, T4)

3.1. The Best Teamwork Experiences

The participants were asked what the best teamwork experiences for their team

were. They thought that the benefits of the teamwork process and diversity of others'

abilities were the best experiences when collaborating with their team members.

3.1.1. Benefits of teamwork process

Cindy (T1) commented, "We just work together really well. We were

[communicating via] email almost every day and we were [confirming with] each other

about where the project was and everybody contributed it a lot. So it went really well."

Mary (T2) said, "More work can be produced by the group than the individual in the

same amount of time. One still has a good view of the entire project when working

collaboratively." Also, Sally (T3) mentioned, "[The best teamwork experience for me was

trying] to solve problems….[It is] not only your project but it is a group project. Just

feeling of the group, the team I guess. It is very important."

3.1.2. Diversity of others' abilities

Two participants commented that the teamwork process allowed them to

brainstorm with each other in creative ways. Martin from Team 3 pointed out that

"Working in group provides you [the opportunity to] collect ideas for more than a one

pot…As a group, we can decide the best way [of how the team was going to make the]

presentation." He also commented:

> Since we are four different people, we all interpret everything four [different ways]
> and we can take all four [different] ideas putting together and try to come out with
> one really good idea. So that is….probably the best teamwork experience just
> compiling things together and coming through consensus…say hey that sounds
> really good and let's go with that.

Diana from Team 4 also commented:

> I would say that one of the better things is…we all have different things to
> contribute. We all came from not exactly professionally or educationally the same
> spot. So everybody was able to contribute something that maybe the other person
> hasn't been thought of.

3.2. The Worst Teamwork Experiences

The participants were asked what the worst teamwork experiences for their team

were. They thought that questionable behaviors of members, lack of communication, and

low level of individual accountability were the worst experiences when collaborating

with their team members.

3.2.1. Questionable behaviors of members

Five participants stated that it was hard for online team members to predict and

control other members' behaviors regarding their contributions toward the quality of

projects. Cate from Team 1 said, "In case working in a group in online class, you are not

sure whether your group members will be a responsibility person and can meet the class

objective." Jessica and Tiffany from Team 2 also mentioned:

> At the very beginning [of the semester]…we were all counting…and I want to know about [my team members]. Are you going to be as good as I think…and as I hope you will be and are you going to be hold the weight that you suppose to? (Jessica, T2)

> It distresses me a little bit when one of the team member said 'I don't do group very well.' It was like, what did that mean?...are you going to be a lousy group member or what? You know they are very [honest] with that which I guess they thought that would be helpful, but you maybe wonder about, you know, [what] the rest of the course is going to be like. (Tiffany, T2)

In addition, Martin (T3) noted that "There is definitely barrier because sometimes things

get turn in a little late or the quality is not consistently." Chris from Team 4 also noted,

"You are entirely dependent on your group. If they are unmotivated or incompetent, your

experience will suffer. You have no control."

3.2.2. Lack of communication

Three participants complained about the lack of communication which could

mislead the direction of the team projects. Mary (T2) pointed out that "…in this program,

I don't know where those people were with their educational process. Some of them

weren't very accountable for their own behaviors. It's very frustrating….We have a lot of

problems working together. Some people were never communicating [with each other]."

Betty from Team 3 said, "No one responded for three days, however, and I found this

completely inappropriate…The lack of communication from everyone in the group was

inexcusable." Besides, Sally from team 3 also mentioned:

> Communication was not so good [in our team]. We did not communicate so much more. Everybody try to put something, some kind of efforts. But it was not ...they call organized…We just try to catch something out, but not in an organized way. So...I think that we have some problems…for us try to communicate.

3.2.3 Low level of individual accountability

Three participants expressed their frustration regarding team members' low level of accountability. Mary (T2) commented, "I think one of the problems…was nobody is willing to step up and said 'ok, I am going to lead the project.' So we didn't have it taken care until the very latest weekend [before the due date]." Martin and Catherine also commented:

> Half of the group, which would be two people and they were consistently late on thing...and one of them is the group leader. You are the group leader you shouldn't be late. That is probably the worst thing is just you know we set up expectations with them they never really would make (Martin, T3)

> One of our members was not accountable and she won't be reliable and you can't [force] someone to do that, you know…we are all adults and we should be responsible for ourselves. I don't feel like we should to be her boss once we suppose to be teammates. So it was really hard and it didn't end up working out very well. If you are not all on the same page and you don't all work toward the end goal and have the same mindset. It is not going to work very well. (Catherine, T4)

3.3. Perceptions of online teamwork trust

Participants thought that individual accountability, familiarity with other team members, commitment towards quality work, and team cohesion were all important variables for building trust with their team members.

3.3.1. Individual accountability

Seven participants in the four teams thought that individual accountability from their team members was the most important component for them to trust more in the online teamwork environment. Cindy from Team 1 stated that "I think when we started

everybody was contributing equally. That you all provide feedback and you return email quickly. And then you started to feel trust." Cate from Team 1 also stated, "Take responsibility for a part of the project and complete it in a timely manner with a certain degree of quality acceptable to the group." Sam from Team 2 said, "First, [for team members to trust you] was by doing what you say you will do, when you say you will do it, the way you say you will do it…and the proof is in the performance…We simply accepted and treated each other as professionals. We all have jobs with high degrees of responsibility and that integrity carried through the work we had here."

Martin from Team 3 commented that team members should show their responsibilities on accomplishing projects and the quality of projects as long as the team has been formed. He stated:

> [It is important for us] to meet the requirement. And basically as long as we started the first project, we all contributed it. I think the trust was built when we were able to turn in our stuff on time. The quality of what we wrote and the outlines we made, as long as the quality was consistent, we were able to trust everybody.

Sally from Team 3 also expressed her experience in a different fashion and claimed the importance of the individual's responsibility to build teamwork trust. She said:

> We accepted each other's strengths and weaknesses in the beginning of the semester. We assumed that everybody will be fully responsible for doing their part of the project. However, the degree of trusting others decreased gradually throughout the semester as we worked on the assignments. In other words, I had started the group project by having "full trust" to others but I lost my trust as they didn't do their part of the project as they were supposed to. For instance, I lost my trust to [her], the team leader, when she didn't include my edits in the first assignment and we were graded down for not including the section that I had corrected. That was really frustrating for me. And I never trusted her again, that I was right because she never fulfilled her responsibilities.

Catherine from Team 4 mentioned, "[Our team members] always did what they said they

were going to do. They always did it on time and they always did their best works.

Because they knew that we were depending on each other." Diana from Team 4 also

mentioned, "Responsibility is important for a group project. Each team member should

present his/her own capability to finish the job on time or achieve the team goal with high

quality of work."

3.3.2. Familiarity with other team members

Some participants thought knowing each other well (team members' habits,

personality, and expertise) and knowing each other's strengths and weaknesses could help

the entire team to break the ice and form productive relationships. Cate from Team 1

commented, "The introduction activity was a good idea of the commitment and work

ethic of the other group members." Cindy (T1) also commented, "Break the ice or

introduce ourselves to everyone in a group [is important for teamwork trust]. We tried to

get to know each other before getting start the group project." In addition, Doris from

Team 1 indicated:

> It was a natural progression as we went through the course and got to know each
> other more. Cindy and I both have similar backgrounds and work ethic and we
> understood and trusted each other right off the bat…We built trust with each other
> throughout the semester. I didn't immediately trust my group members because I
> didn't know their ability levels or background. The trust was a continual building
> process. If a group member did a good job on an assignment or was trying to get
> the group together to function as a whole, I began to trust that group member and
> her abilities.

Sally from Team 3 provided an example of how they were in charge in different

assignments based on each other's strength. She said:

> If somebody is good at like doing a PowerPoint, flashing, animation, then this
> person could do this part. For example in assignment 2, I am good at like
> objectives, so I volunteered to try the objectives part. Because I am a teacher and I
> know how to write objectives, so I did that part [because] that was my
> strength….So I think group members should know each other better and then go

through their strength.

3.3.3. Commitment towards quality work

Some participants in Team 3 and Team 4 thought that team members should have

the ability to talk with others in the group constructively to reach a similar goal and to

achieve high performance. Sally (T3) commented that "[In order to build trust in the team,

all members should] put equal amount of effort and energy towards group project and

have equal level of motivation to work in a group." She also commented:

> I think we built trust with one another by assigning projects to be completed by a
> certain date and time. By completing a part of the project on time with a certain
> amount of quality it became easy to trust each other to contribute cooperatively to
> the group project

In addition, Martin from Team 3 mentioned:

> You need to be able to trust people that you are working with in order to come out
> the best project. Because if you don't trust people you are working with, you are
> more imply of not to accept their ideas….And if you can't trust them to do that,
> and it is more work on you. Coz if you feel like ok we are not going to pull their
> weight, I am going to make up. If everybody is on the same boat, then everything
> is good. If everybody is on the different boat, we probably will have problems.

Diana (T4) stated that "...All the members are trying to do quality work and getting the

work done on time. For [achieving] the goal, I think you have to trust the members…to

hold your commitment." Catherine (T4) said, "[My team members] all brought different

types of expertise to the group. And they all give to the group through their expertise."

Diana (T4) also pointed out the importance of commitment for their team and how they

maintained commitment through effective teamwork strategy. She affirmed:

> [For building trust with each other], I think just the commitment that our team had
> set for any other assignment. Whatever the assignment due day was, we had the
> internal day that was the day before, so that we could do last minute changes so

nobody would panic…As long as you make your commitment, you know, and we are responsible that really builds a lot of trust.

3.3.4. Team cohesion

Three participants thought that team cohesion can pull everybody together by encouraging each other and standing up for what is right for team. Jessica (T2) pointed out, "I think by encouraging one another and providing the positive feedback [to your team members]. And that is primary. It really is. You have to encourage each other and develop that sense of trust." Sam (T2) said, "We simply accepted and treated each other as professionals. We all have jobs with high degree of responsibility and that integrity carried through the work we had here." Also, Sally (T3) said, "To be willing to help each other and to put equal amount of effort and energy towards group project [were how we build trust]."

On the other hand, Debra from Team 4 expressed her disappointment with team members because she felt like an outsider. She said:

> The three other members met face-to-face, a luxury I am not able to partake. As such, many of our team goals and objectives for the project were changed, modified and redirected. A HUGE fact they forgot to share with the other person on this team, myself!…they forgot to inform me of the new direction for our project, until after I had accomplished the task assigned. Now, due to their ability to meet face-to-face and their shared communication, along with my complaints of their lack of communication, I am now viewed as an outsider. As such, I am no longer directly addressed in most communications, instead referred to in the 3rd person.

3.3.5 Quantitative data of teamwork dynamics

Table 2 illustrated the results of statistics analyses from the *Teamwork Dynamic Scale.* It can be observed that Team 1 reported the highest level of trust ($M = 5.22$), team

familiarity ($M = 4.25$), and team cohesion ($M = 4.75$). Team 1 also had the highest

performance in team projects (54 points) among four virtual teams. Team 2 reported the

second highest level of trust ($M = 4.66$), team familiarity ($M = 3.50$), and team cohesion

($M = 3.67$). Surprisingly, their performance in team projects was the lowest (46.75 points).

----- Please insert Table 2 about here -----

The results of the multivariate correlational analysis revealed that team trust,

familiarity, and cohesion were positively correlated with each other (see Table 3).

Furthermore, teamwork trust was correlated significantly with two of the important

factors for building trust indicated by all team members: familiarity with members (r

$= .74$) and team cohesion ($r = .79$).

----- Please insert Table 3 about here -----

4. Discussion

Team members' perceptions of online collaborative learning, teamwork

experiences, and building teamwork trust were assessed through three open-ended

questions and eleven interviewees' responses.

4.1. Perceptions of online teamwork learning

First, participants expressed their perceptions about why they had positive

attitudes and negative attitudes. The major perspectives regarding why participants

enjoyed working in the group setting were that teamwork could promote the quality of

projects, they had a good relationship with their team members, and they trusted team

members' abilities to fulfill high quality projects. There were also reasons why they did

not feel comfortable working with the team members. They felt that some team members

did not contribute to the projects in the same way as they should. Finally, some

participants thought their opinions would be different if they had been grouped with other team members since their feelings depended on how they got along with their team members.

Second, a majority of participants thought the benefits of the teamwork process and diversity of others' abilities were the best aspects of collaborating with their team members. They stated that the teamwork process established a creative learning environment to promote their critical thinking. In contrast, the questionable behaviors of members (lack of communication and low level of individual accountability) were negative factors of their teamwork experiences. Participants stated that it is hard for online team members to predict and control other members' behaviors with regard to their contributions toward the quality of projects, especially in the early stage of teamwork process. Lack of communication was another major problem team members faced as they tried to collaborate. This inability to fully communicate may have then led them toward feelings of isolation and additionally have made them feel ignored.

4.2. Perceptions of building teamwork trust

Individual accountability, familiarity with other team members, commitment towards quality work, and team cohesion were all important variables in participants' mind for building trust with their team members. Individual accountability in the virtual teams is a foundational component as team members evaluate their strengths and weaknesses and their contributions to achievement (Kreijns & Kirschner, 2004). The participants stated that the team members should dedicate their efforts to the quality of projects and complete it in a timely manner as they promised. In that way, trust relationship can be built step by step by recognizing and assessing team members'

contributions. In effective teams, individual and mutual accountability both leads to increased trust among group members (Katzenbach & Smith, 1993). Especially in virtual teams, trust must be mutual and reciprocal to compensate for the lack of interpersonal interaction and communication (Peters & Karren, 2009). Moreover, the participants expressed that familiarity with other team members was important for them to build trust with the team members if they know each other's working preferences, expectations on achievement, and strengths and weaknesses. In addition, the teams in which team members were more familiar with each other were more cohesive (Janssen, Erkensa, Kanselaara, & Jaspersa, 2007) because they had more opportunities to focus on team development process and the quality of team projects. They commented that the introduction activity had provided team members excellent opportunities for knowing each other's personal and cultural information when the teams were first formed. This reflects Water and Napier's (2002) assertion that trust can be built initially as team members learn how others wish to be treated and then act accordingly.

Furthermore, team commitment towards quality work was another factor for teamwork trust to be built. In this study, participants thought that team members should have the ability to talk with others in the group constructively to reach a similar goal and to achieve high performance. Some participants stated that the team goals and team commitment need to be established and engaged through the entire teamwork process. This result is consistent with Crossman and Lee-Kelley's (2004) finding that multiple relationships arising from the alliance-based structure require clear commitment to enable the development of trust as a basis for longer-term partnership. Katzenbach and Smith (1993) asserted that team members were charged with delivering extra performance

outcomes that resulted from committing to a common purpose, a set of performance goals, and a common working approach while holding each other individually and mutually accountable. In addition, participants thought that team cohesion could pull everybody together by encouraging each other and standing up for what was right for the team. Trust is the foundation for high quality team atmosphere and team cohesion. Without team cohesion, the team members may be more concerned with authority and competition for attention rather than working together as a community of collaborative teamwork. Team members have to discover, adopt and perhaps adapt approaches to creating "team cohesion" in which deep, continual and mutual relationships sustain co-operative behaviors (Erdem, Ozen, & Atsan, 2003).

A surprising result in this study was that trust did not influence performance directly; rather, it has a mediating effect (Aubert & Kelsey, 2000; Dirks & Ferrin, 2001; Jarvenpaa & Leidner, 1999; Qiu & Pescheck, 2012). Another consideration is that excessive trusting (trust without suspicion), which would be more common in a high trust team, could be dangerous and exacerbate abusive behavior such as non-monitoring of opportunistic behaviors, unintentional negligence or mistakes (Wicks, Berman, & Jones, 1999). Furthermore, Erdem et al. (2003) also argued that excessive trust could create risks for teams because it resulted in groupthink phenomenon. In such a situation, team members applied "self-censorship of their own thoughts that deviate from the team consensus…together they attempt to rationalize decisions within the group values and norms; in all controversial situations, agreement is sought; the illusion that failure does not affect the team is developed" (p. 337). This situation took place in Team 2 during week nine as reflected in their comments, which created a form of "group-myopia." Thus

the diversity of view was inhibited and creativity was limited.

5. Conclusion

Results of this study indicated teamwork effectiveness did not directly increase the quality of products and was not convincing as a strategy for student learning in all situations of group dynamics. Relationship conflicts, lack of communication, and low levels of individual accountability seemed to be the most serious problems for virtual teams failing to work collaboratively in these cases. It is advantageous to discover the struggles and conflicts earlier, to facilitate the open communication channel in teams, and to encourage individual accountability. With these goals in mind, the researchers provided the following recommendations.

First, use role-playing techniques that allow students to discover insights about themselves and others. This allows students to express strong opinions and can result in challenging their own roles and an understanding of other peoples' roles and strengths. For instance, a role-play activity with a jigsaw design involving real-life environmental negotiations can be developed to encourage students to recognize their roles and responsibilities in the teamwork process. Second, if conflict has already occurred, the mediator could work as a peace maker to help the individuals involved in the dispute to reach their own agreement, and achieve practical, sustainable resolutions. The mediator is sometimes an independent third party that acts as a facilitator. In fact, research shows that peer mediation programs, where students are trained to resolve disputes of other students, have proven to be relatively successful (Johnson, Johnson, & Dudley, 1994; Sneller,

2010).

It is challenging for newly formed collaborative teams to get familiar with others and build trust as soon as possible, especially when they have project deadlines to meet. Team members need to learn how to collaborate and communicate with others effectively, to build team norms and cohesiveness, and to achieve performance goals. This study investigated team members' perceptions of online collaborative learning and teamwork trust building. The results of this study have implications for online instructors and online team members to comprehend the dynamics in diverse teams. This study also offers a potential blueprint for instructors who are planning to implement online collaborative learning strategies. The findings will help instructors in planning interventions that will improve students' collaboration experiences and assist students in maintaining teamwork trust and team commitment. Online collaborative learning is more learner-centered approach. In the real-world situation today students are required to have higher-ordered thinking and decision-making skills in order to resolve the complex problems. For future studies, the next step will be to implement authentic assessment to evaluate virtual learners' learning process instead of using performance assessment, and to investigate the differences in students' responses from high performance and low performance teams.

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Table 1

Information of participants

Team #	Pseudonyms	Gender	Major	Participated In Interview	In-service Teacher
Team 1	Cate	F	Educational Technology - MA	X	
	Cindy	F	Educational Technology - MA	X	X
	Doris	F	Educational Technology - MA	X	X
Team 2	Jessica	F	Nursing Education - MA	X	
	Mary	F	Nursing Education - MA	X	
	Sam	M	Sport Administration - MA	X	X
	Tiffany	F	Sport Administration - PhD		
Team 3	Betty	F	English - MA		
	Martin	M	Chemical Education - MA	X	
	Sally	F	Chemical Education - PhD	X	
	Susan	F	Biological Education - PhD		
Team 4	Catherine	F	School Library Education - MA	X	X
	Chris	M	English Language and Literature - MA	X	
	Debra	F	Special Education - MA		
	Diana	F	Educational Technology - MA	X	X

Table 2

Descriptive statistics for teamwork trust, familiarity, cohesion, and group project score

	Team1	Team2	Team3	Team4
Teamwork Trust	5.22	4.66	3.56	3.92
Familiarity with Members	4.25	3.50	3.50	3.31
Team Cohesion	4.75	3.67	3.00	3.06
Project Score	54.00 (98.2%)	46.75 (85.0%)	48.75 (88.6%)	47.25 (85.9%)

Note.
- Teamwork Trust was measured on a 6-point Likert-type scale and Familiarity with Members and Team Cohesion were measured on a 5-point Likert-type scale.
- Maximum possible score of five Projects was 55.

Table 3

Intercorrelations of the teamwork trust, familiarity, and cohesion

Scale	*1*	*2*	*3*
1. Teamwork Trust	--		
2. Familiarity with Members	.74**	--	
3. Team Cohesion	.79**	.52	--

* $p < .05$ ** $p < .01$