Forming Virtual Learning Community within Online Course: Students' Perspectives

Fengfeng Ke
Penn State University

Abstract

This research intends to explore students' aspect and impact on forming virtual learning communities within online courses. A formal online course that is on the process of building virtual community is closely examined to discover students' perceptions of learning community approach, their online performances, and how these perceptions and performances facilitate or hinder the forming of a virtual learning community. The study can serve as a useful guide for online education practitioners and online learners.

Introduction

In this information era, institutions of higher education are delving into the world of online learning: there has been rapid growth in the number of course being offered either entirely online or as a supplement to a face-to-face course (Underwood et al., 2000).

On the other hand, online courses have been appearing so rapidly that little thought or effort seems to be given to the specific needs of the classroom in cyberspace. Traditional teaching methods are being attempted in a nontraditional environment (Palloff & Pratt, 1999). Many online courses simply put face-to-face class's lecture-based content online. Such kind of "traditional" online courses, as demonstrated by the research (Besser, 1996; Carr, 2000; Herrington, et al., 2001, Kerka, 1996; Schrum, 1995, Swan, 2001), have caused high dropout rates, bad learning outcome, and low satisfaction rate. Therefore, how can we modify current educational strategy to enhance online learning process? In answering the question, educational researchers have recurrently proposed the virtual learning community approach.

Briefly, virtual learning community is an extension of the physical learning community outward to the electronic one (Russell & Ginsburg, 1999), which is originated from the constructivism learning theory that proposes a goal-based collaborative learning within a community context (Wenger, 1998). Palloff and Pratt (1999) have explained the importance of community in electronic classroom by arguing, "The learning community is the vehicle through which learning occurs online...Without the support and participation of a learning community, there is no online course." The importance of community in online learning is also supported by empirical research. Quite a few studies (e.g. Hiltz, 1998; Prestera & Moller, 2001; Russell, 1999; Russell & Ginsburg, 1999; Shrivastava, 1999; Wang, et al., 2001) evidence that virtual learning community is a powerful tool to boost online learning participation and achievement.

A virtual learning community, according to Rovai (2002), can be constitutively defined in terms of four dimensions: spirit, trust, interaction, and commonality of goals (learning). Similar definitions of virtual learning community can be also seen in the works of McMillan & Chavis (1986), Jonassen, Peck, & Welson (1998), and Kowch & Schwier (1997). These definitions suggest an essential framework of a virtual learning community, which comprises: an active learning environment that fosters a climate of learning in community, a dynamic learner-directed process of "communication, collaboration, interaction, and participation" (Lock, 2002, p. 397), and the development of feeling or sense of community.

However, even though literature has explained why virtual learning community is important and what it is, another fundamental question remains poorly answered – how to build a virtual learning community?

Currently, there are a select few studies examining the development of learning communities within online courses. These studies focus on the community environment and address the issue through the lens of designers and developers. Some attempt to describe a systematic development model for building virtual learning community, including the research by Barker (2001), Lock (2002), and Ravitz, (1997). For instance, Ravitz (1997) proposed a seven-stage ISD model for building virtual communities, which involves management, front-end analysis, communication environment design, projects development, implementation, community evaluation, and information dissemination.

Others (e.g. Kuhl, 2002, Nixon & Leftwich, 2002; Prestera & Moller, 2001; Quitadamo & Brown, 2001; Snyder, 2002; Yoder, 2003) emphasize the pedagogical issues when designing instructional context that promote community. A representative one is done by Yoder (2003) who presents seven strategies to foster a

community-promoting online communication process.

Finally, some design research (e.g. Cutbbert, et al., 2002; Jin, et al., 2001; Lally & Barrett, 1999) has evolved around the technological issues in constructing a virtual "community place". For example, Lally and Barrett (1999) discussed the strategy of using computer-mediated communication to reduce transactional distance and facilitate the construction of learning communities in an online environment.

Few of these studies, however, are empirical research. Additionally, previous literature has not amply described students' perspectives and impact in community development. As Lock (2002) and Jonassen, et al. (1998) have pointed out, the learning community model depends largely on students. Students need to be aware of the community philosophy and "make a paradigm shift in their learning strategies" (O'Sullivan & Miron, 2000, p. 7). However, guidelines on how students respond to community in cyberspace are scarce.

As a conclusion, significant work, especially empirical research, is needed to well address the issue of building community within online course in terms of learners' perspectives, responses, and impact on community forming.

Research Purpose and Questions

This qualitative study intends to explore learners' perspectives and responses to forming virtual learning communities within online courses. Specifically, the central research question to be answered is: what are students' responses to the virtual learning community and how do these responses relate to the community development?

This research contributes to the literature by attempting to shed light on the development process of virtual learning community in terms of what is really happening to participants and how their responses influence the forming of the community.

Methodology

The research is designed as a qualitative case study. According to Stake (1995) and Creswell (1998), case study is employed when the project involves a "case" (bounded in time or place) and extensive materials from multiple sources are collected to provide an in-depth picture of the "case".

In this study, a formal online course in a major American university, which takes learning community approach in instructional context design, is identified as a "bounded case," bounded by time (5 months data collection) and place (a single course). Extensive data from individual in-depth interviews, online activities observation, email messages, transcripts of bulletin board and chat room discussions, students' assignments, and other course materials have been collected. Through this data collection, the researcher then makes a detailed description of the context or settings of the case, conducts an analysis of themes, and gives an interpretation or "assertions" about the case (Stake, 1995).

The Case Setting

INSYS 446 (spring, 2004) was a purely online graduate course delivered by a major American university through ANGEL course management system. The course was medium-sized (with 30 students). The instructor of the course has taken a constructivism learning community initiative to design and develop the instructional context.

First, instructional and learning activities evolve around intensive online interactions and collaborations using both synchronous (chat room) and asynchronous (bulletin board) conferencing tools. Online interaction and discussion is required and graded. The syllabus lays out a clear specification on the frequency and content of the peer feedback. Group work with project-oriented collaboration and information exchange is emphasized in the course assignment. Students need to develop application projects in the unit of small group. This fact is explicit in the following description cited from the course syllabus:

You will work in teams of 3 when possible and each team will create three mindtool projects. We will begin with a planning week then have three production weeks. You will act as team leader for one of the production weeks and team member for the other two. Each team leader will guide the production of a mindtool using a different software package. Team leaders can ask teammates for assistance with development and assessment ideas, and will ask teammates to test the mindtool. Each class member will act as a codeveloper on 2 mindtools projects. Codevelopers will advise team leaders and serve as beta testers of mindtool projects (INSYS 446, March 8th, 2004)

Second, the learning process is student-directed rather than lecture-based. In the introduction part of the course syllabus, the instructor claims that he will let students explore the subject before sharing his opinions

with them. This claim can be observed from the fact that on the course site there is no section for explicit lectures. Online instruction is conducted in forms of feedback and guidance, through bulletin board and emails. Learning is active and project-based: Students need to develop projects from real world problems to illustrate their knowledge of subject content; they share expertise and contribute multiple perspectives to peers during project development and assessment; in addition, they are provided opportunities of taking on various roles (leadership or regular member) in support of their learning process. Such a project-based situated learning, as Tam (2000) and Lock (2002) suggest, helps to cultivate an environment that promote community.

Third, the instructor encourages an "atmosphere of adventure" (Hill, 2001, p. 9) in his evaluation mechanism. Learning tasks, whether reading review or application projects, are mostly open, heuristic, not assuming only one standard answer. Students' assignments, as observed, displayed multiple presentation format and multiple perspectives. They are evaluated more in terms of efforts and richness, rather than absolute correctness.

Finally, the setting of the online discussion has emphasized group cohesiveness and identity. In the bulletin board, each group has its own group discussion forum in addition to the general class forum, and each group has a specific name for identification, such as "Banana" team, "Apple" team, and the sort. Then, the grouping is developed based on two criteria: interest in the same learning topic choice, or the same professional background that rear interest in similar real world problem. This kind of grouping strategy, as the researcher interpreted, is a reflection of "commonality of expectation" among group members (Rovai, 2002).

During observation and interviewing, the researcher has not found an obvious concern on relationship development in INSYS 446's instructional design and development. However, the instructor does allocate one orientation week for students to post a detailed self-introduction message to the whole class. He also opens a personal page for each student and asks them to upload pictures and personal information there. Most of participants interviewed express their appreciation of the orientation and personal pages as customs to develop sense of familiarity and relationship.

Based on the above-mentioned features, the researcher believes that INSYS 446 (spring, 2004) is a representative and valuable case to be examined for the research intended. Hence the researcher asks for the instructor for the permission to access, and has examined the case as an avid spectator.

Participants

Creswell noted, "The purposeful selection of participants represents a key decision point in a qualitative study" (1998, p. 118). By following his "maximum variation" strategy to select subjects that represent diverse perspectives, the researcher has selected 12 participants from the students enrolled in INSYS 446 (spring, 2004), who are diverse in terms of age, gender, nationality, professional background, prior online learning experience, and finally, learning styles.

These 14 participants, aged from 20s to 50s, 5 females and 9 males, comprise full-time education-majored graduate students and part-time adult students who are pursuing Instructional Design certificates. Two of them are non-American, one Korean and one Chinese. The participants come from different career fields: K-12 education, corporate training, organization consultant, and higher education. They also vary in their prior online learning experiences: some of them are very expert online learners (having taken 2 to 3 e-courses before) while others have INSYS 446 as their first online course. At the beginning of the study, all participants have taken the Myers-Briggs Type Indicator (MBTI) (Association for Psychological Type, 2000) and the Cognitive Styles Assessment (CSA, Riding & Rayner, 1998). Their test results indicate multiple personality types along the four personality dimensions (extraversion/introversion, sensing/intuition, thinking/feeling, and judging/perceiving) and different cognitive styles (the ratio of field dependent to field independent being 6 to 8).

Data Collection

To enhance the vigor of the study, the investigators have employed data triangulation, which includes interview, observation, and discourse analysis. The interview was individual, semi-structured, extended, and iterative. Concurrently, the investigators have observed these subjects' online discussion activities by both reading through their on-going message exchange and personally observing them in their home space. Finally, the investigators have also reviewed course documents, class emails, and bulletin board scripts (of 10 weeks) to examine subjects' online participation process.

In-depth interview: The researcher conducted individual in-depth interview with every participant, each interview lasting for one hour. The interview was semi-structured: an interview protocol with open-ended questions was framed to activate the exploring of interviewees' stories. The researcher did face-to-face

interviews with two participants who lived around the school area and telephone interviews with the others. All interviews were tape-recorded. The participants were encouraged to explore their responses to virtual learning community to the fullest.

Observation: The observation in this study took two forms: online and face-to-face. For the online observation, the researcher logged into the course site and read through participants' postings in bulletin board and chat room. A semi-structured observation protocol was developed to guide the attention during observation, though the actual observation was open to any situational changes. The researcher also personally observed two participants when they logged onto course site and did online posting at their study rooms.

Document analysis: Course documents, such as the syllabus, course timeline, students' projects, and their class emails, were also collected and coded.

Data Analysis

By following Stake's (1995) proposition on the case study, the researcher has first aggregated the data into about 24 categories (categorical aggregation) and collapsed them into two patterns with nine themes. Member checking has been employed to ensure the credit of direct interpretation. Finally, generalizations about the case in terms of patterns and themes are developed in comparison with the published literature on virtual community development.

Findings

Two general patterns with nine themes have emerged through the process of data generation, analysis, and comparison of participants. These central patterns and themes are listed and discussed below. Participants have been referred as "P1" or "P2" in the quotations.

Cognitive Response

The cognitive response involves participants' learning strategies and actions to the collaborative learning in a community context. These strategies include meaningful communication, interacting academically, managing group work, instructor-monitored participation, and self-adaptation.

Meaningful communication: The participants expressed, "typically I would not just post, you know, for the sake of it." In other words, meaningless communication is deemed non-necessary. They cared a lot about the content of discourse. It was observed that the participants did not respond to all the postings. Actually, they purposely selected message to reply, based on their evaluation on whether the discourse was constructive or not. P1 said:

> When I respond, I respond to the ones that I feel that I have a comment that is worthy of making posting. I don't necessarily always want to put down "yes I agree" "no, I don't". I want to have something that I can add to the conversation. So I read a lot more postings than I respond to. I don't respond to all the postings. I don't think that is necessary.

The messages that I tended to respond first are ones that are practically based, usable in the real world. At the same time, the participants would like to post meaningful messages to peers. By "meaningful", participants meant: being able to inform, or being able to help. For instance, participants explained the usual occasions when they would post messages:

> Let's say somebody asked questions that I thought I had answer for or suggestions I might post that. Or maybe somebody made a comment that I could maybe add additional information to or my own personal opinion that were my expand on that comment, I might add that (P2).
>
> Usually when someone who are new, need help with something, I would like to help and tell (P8).

In order to ensure the "meaningfulness" or quality of their discourse, some participants stated that it was helpful for them to do a careful pondering before posting any messages:

> And that's why I liked the (discussion) board: it is because it gives you opportunity to think about what you are going to say just before you blur it out. Sometimes I will start to write a posting and then decide that "well, I don't want to say that" so I will delete it, I won't post it (P3).
>
> It is hard to get across which you are trying to say without careful thinking or something, so I will try to reread what I typed in, I will rearrange sentences, it 's more like typing a memo. And then I will send it. Usually I try to be conscious on what I am posting (P10).
>
> I prefer online discussion to face-to-face one. With online, you can have a time to think it over before responding to the other persons (P4).

With all these messages, the participants demonstrated that they were concerned about the content or the knowledge density of a discourse. They believed that a worthy discourse was filled with "valid and important information" rather than "gossiping" (P3). They even used "being usable in the real world" as a criterion to judge the value of a message. Therefore, they felt disappointed with a simplistic exchange of "yes, I agree" or "good job" which supported none of "information exchange" but only "social reinforcement" (Moller, 1998).

Interacting academically more than socially: The interactions among the participants, as they put, "have been on academic level". In coding the participants' online discourses, the researcher found that almost all the messages they posted or responded were around the projects to be developed or class readings. Few of postings were to fulfill a social function, such as the exchange of personal information or feelings. This finding was also confirmed by the interviewing data. For instance, some participants said:

> I don't know. I see this more as…I guess my interactions have been on professional level. I haven't been contacted on personal level, nor have I contacted anyone on personal level. There is not enough time for that. Maybe because people are just so spread out that, that has an effect on how much you want to invest in developing an relationship that would probably just last over a couple, you know, several weeks (P5).
>
> I think we were in touch academically, not necessary socially. We had little social talk. What is the point? I probably will never meet these people. Why bother some social relationship? (P6)

These explanations indicated that timing and physical distance were two practical concerns that deterred the social interaction. However, beyond these surface reasons, a hidden explanation is that the participants did not value social reactions. They wondered about the meaning of social talk (by saying "what is the point") and deemed the investment in developing social relationship as extra or non-necessary (by questioning "why bother").

The social-networking-relative interactions happened mostly during the first orientation week when the instructor required students to introduce themselves to each other and each person published their personal pages. A point to note is all participants interviewed expressed their appreciation of the orientation week and peers' personal pages. As P3 told, "At least now I know who I will work with in the team and where he comes from."

Non-academic interactions happened also when a student, intending to explain his delay on coursework, posted message telling he just got a new baby. It was observed that most participants responded with a brief "congratulation" note. When asked about why, P1 explained, "I don't know, it's just a formality to congratulate someone getting new baby." During the course, such a formality-bounded social interaction did occur several times.

Finally, in the chat-room sessions more interpersonal networking messages popped up. The comparison of bulletin board scripts and those of chat-room indicated a difference: the former were written in a more formal tone while the latter displayed more a personal voice and mixed with more social presence signs (such as "☺"). Some participants expressed preference of chat-room to bulletin board because "it is more like face-to-face talk" while the others believed they tended to think more during bulletin board discussions.

Managing group work: Group work, in participants' perspectives, involves critical management issues of timing arrangement, responsibility specification, communication tools selection, and investment in peer support.

First, online observation showed that timing was a critical issue in group work. Some participants displayed a particular concern about the timing within teamwork. On the group discussion forums, these participants tended to be active ones who initiated the negotiation of team schedule. Typically, they volunteered to be team leaders, with an intension "to get it done and out of it anyway". They posted their speculations of the timeline to the whole team. They softly pushed the others to abide by the schedule by posting the messages like, "how is everything going…we have only one week left for the finalization" and the sort. Other participants, differently, felt more comfortable being passive and pushed by the peers. One said, "I am not a very organized person and usually wait to the last minute to do my work. Group is a great way to monitor and push me onto the track." Due to such a difference of the timing concept, a tension or conflict is inevitable in the group. Actually, in their emails to the instructor, quite a few participants complained their teamwork experiences were not as positive as they expected, because "work progress was delayed as teammates did not do their work on time".

Second, some participants demanded responsibility specification in the teamwork. They said:

> Having labor division is very necessary. Everybody then will understand what to do and when to do.

> Usually, when I collaborate with people, you know, especially at work, we do good job defining, you know, evening out roles and responsibilities at the beginning. So it ends out being fair, you know, break out the work.

They hoped that by specifying responsibility, there would be "fairness" among members' investment and commitment. However, they also expressed a concern on the binding power of the responsibility specification, "Although the rules were laid out, people would not interpret them as the same, so they did not do the same." Therefore, some participants requested that the instructor should have played a more powerful monitor role, "He should be able to tell who is working who is not."

Third, the participants employed specific strategy in selecting communication tools during teamwork. P4 described:

> I use group discussion forum to post my assignments, ask for teammates' opinions, and post feedbacks to teammates. If I need to talk to someone privately, I will send personal email. I would like to use chat-room for instant opinion exchange, but it is so difficult to schedule a time when all of us can be online. Then I usually email the instructor.

This description was echoed by the researcher's observation and other participants' explanations.

Finally, the participants interpreted their investment in peer support as an intentional action of "giving and taking" with a sense of fairness. For instance, P2 complained:

> I think I've given more than I got it returned. I mean they did not email or post message to me often enough. Even when they did post or email me, they did not write enough. I feel a little frustrated, you know…

Instructor-monitored participation: Generally, the participants favored a participation process that is monitored and supported by the instructor, whose important role in facilitating the online discussion was evident. In the bulletin board, the instructor's posting attracted the most responses. A discussion thread, once replied by the instructor, usually gained a lot more responses than others. This might be, for a major part, due to the fact that online interaction and discussion was required and graded in the course. Responding to the instructor's message, deemed by most participants, was an important way to showing presence and involvement.

Additionally, the instructor was regarded an expert or authority in subject content. P6 said, "It is good to have multiple opinions, but I feel confused as to which one to pick. I think the instructor should present his view so we will know which one is correct." And the frequently mentioned expectations of the instructor were, "He can make public posting to everybody."

Finally, in interviewing, the participants expressed a strong desire that the instructor should specify assignment timeline and monitor students' teamwork progress. For example:

> I know that we have assignment timeline in this course content, but sometimes it is a little confusing to put them together. So if he (the instructor) could just say "here is where we are, here is what is coming up next, just to give…just to make sure everybody is in the same track (P2).
>
> If there is anything, I think he should monitor people with the things we are doing. 'cause right now our group is behind the schedule for the one who was sick and the other one who is not so responsive. I guess if he can remind people to work on time, it will be great (P3).

With these requests, the participants preferred the frequent monitoring by the instructor. This finding was also evident in students' emails to the instructor: the most-often inquired topic was the schedule of assignments.

Self-adaptation: Some participants, when describing their online learning histories, demonstrated a process of personal change and a want for self-adaptation. P3, a trainer who had experienced traditional school education, military technical training, and online education, said:

> Oh, yeah, it is definitely a change. Before I went to the Navy, I was accustomed to the traditional classroom. Then when I went to Navy and learned different type of training, that was very concentrated, very fast. And then now I am back to school again and I am doing this online. And this is the third type where it is not as slow in the classroom. I feel I get more comfortable with it now.

Similarly, P8, a self-claimed solitary learner, said:

> I have always known that I love individual work more than teamwork. I realize it is my comfort zone. But I need to go beyond this comfort zone and take challenge. So to answer your question, I will say I definitely prefer individual work, but will probably choose team project.

These messages reflected that these adult participants were willing to actively adapt themselves to different learning contexts and demands.

Affective Response

The affective response involves participants' perceptions and feelings developed through their learning processes, including: unwillingness to be interdependent, sense of unfairness, sense of responsibility, and satisfaction.

Unwilling to be interdependent: Some participants obviously displayed a reluctance to rely on other members of the team in completing learning tasks. P2 said,

> I tend to know what my ability and capability levels are, and I would rather rely on just myself to accomplish an assignment verses the other people, because I've been disappointed so far (sigh)... My time is limited. It is very difficult to depend on some other's schedule. I have to work ahead. If I have to wait for others' pieces before I can do, I cannot work ahead. It is difficult for me.

Her unwillingness to be interdependent might be due to several motives: trust on personal ability rather than others; former teamwork experiences being disappointing; and timing concern. Like P3, P4, and P5, she felt relying on herself is the most "secured" way to feel "more at control".

Sense of unfairness: The participants were sensitive to peers' different levels of participation and interaction. They read this difference as a sense of unfairness. For instance, P5 and P8 complained, "People participate at different levels, you know. I am in the middle, in terms of posting and giving feedbacks." P2 noticed that "some persons' messages getting more feedbacks. I usually respond to my teammates' messages, but when I posted, there was not much returned." Pressed by their sense of unfairness, the participants demanded a clear labor division in the teamwork:

> P1: Having labor division is very necessary. Everybody then will understand what to do and when to do.
>
> P2: So it ends out being fair, you know, break out the work.

As a result of sense of unfairness, most participants expressed "feeling disappointed" and did self-blaming: "I don't know. Maybe what I wrote was not interesting enough (P2)," "I guess it is my language. People cannot understand my English. I need to make my ideas clearer (P10)," and "I guess it is because of my background. I found most students in this class are teachers, I am not (P3)." Generally, they found themselves "spending less time on online activities now and focus on my offline reading and completing assignment."

Sense of responsibility: When asked about their roles in online participation and collaboration, participants kept mentioning "responsible" or "responsibility":

> P2: I followed all the instructions that were laid out regarding the responsibilities as the project leader.
>
> P3: I think I have a strong sense of responsibility. Individually, I may wait to the deadline to do my work. But in teamwork, I have to do it right 'cause others need my work to continue. And I just don't want to let them down.
>
> P4: The difference between individual and group work is by individual, I am responsible for my schedule and my progress; by group, I am also responsible for my teammates' progress.
>
> P5: Being responsible is to do the work on time and giving feedback to your teams. At least, do what the syllabus required.
>
> P7 and P10: Responsible teammates are necessary for good collaboration.
>
> P12: I did ask them why (they were late in doing work), like, "How come you did not post". I think that is not my responsibility.

Sense of responsibility, as the researcher observed and interpreted, was the most important factor fostering the appropriate behaviors in online learning participation and collaboration. Being irresponsible was understood as "personality issue" (P3). An interesting point to note was one participant, who had been regarded by peers as not responding and being delayed in coursework completion, also believed responsibility was necessary, "Yeh, of course I think responsibility is important. I will do what I am expected to do." Reluctance to admit being irresponsible seems natural.

Satisfaction: During interviewing, most participants explained they were satisfied with their present learning processes in INSYS 446. Positive view on the instructor seemed to be the top ground for the satisfaction:

> P2: I think he is a good instructor. I think that…he is very available. I did not like my first one (online learning course), I did not think the instructor was that great.

P3: I think he is good. He is getting back right away in responding email. If there is anything, I think he should monitor people with the things we are doing.

P5: Sometimes we have very open-ended questions, like what we had in reading review. Sometimes we have a checklist to review what we should pay attention to in project. I think this is a good balance.

P6: He usually gives detailed feedback to our assignments, which is really great.

Then, participants expressed welcome to their learning tasks:

P7: There is a clear guideline on what we should do for the project, but it also gives us space for free thinking.

P8: I like the first two weeks' general discussion (on readings) very much, I feel I have learned most from that.

P11: I like my project. It is my problem in the work. I will teach my people how to use Excel as a management tool.

P12: I like the way we did our learning. First we read and gained necessary knowledge, then we had hand-on experiences. I think this is reasonable.

Finally, the participants valued collaboration opportunities in the online course. They felt they could test and enrich their thoughts in teamwork and group discussion:

P2: The nature of the project was that it did require participation from the other members' in the group just so that we can get feedback on how our mindtool was being used, so if I were to do it myself, it would be really hard to get feedback from somebody who understand what I was doing.

P5: I think when I am working with the group, and I am having that feedback back and forth, it lists more information pulled more out of me and I get more information from other sources besides what I have, so I get more knowledge than what is in my head, more experiences that other people might have that I wouldn't have had myself.

The above statements indicated that the participants involved in collaboration for sharing perspectives with fellow students. Getting informative feedback and expertise exchange attracted them into group work.

Discussion

Conclusively, in the case studied, the participants share similar responses to communication, action, and participation in terms of purposes and rules; they implement communication tools to collaboratively learn; and they prefer to experience a division of community labor or responsibility. These three operations agree with the activity theory which Hung and Chen (2002) have proposed as a framework for learning community operation: rules, tools, and division of labor as three bonds to affiliate subjects with the learning community.

Then, in this case the participants interviewed and observed have not presented enough evidences showing a strong sense of connection or belonging (McMillan & Chavis, 1986). Actually, the participants did not value the investment of timing and efforts into relationship construction, mainly due to timing concern and doubt on the networking purpose. This finding echoes Brown's (2001) study conclusion: The participants did not perceive community to exist online and they did not place a high priority on devoting time to fostering relationships. However, a sense of relevancy do exist and help to create a degree of bonding: participants tend to respond to familiar names in bulletin board; participants prefer views from people who share similar career background; and participants who have different background from the majority deem themselves as more "outsider" (P2 and P9).

Additionally, the feeling of trust (Rovai, 2002) is not realized in this case. Most participants are unwilling to rely on other members of the team. Reasons may be the frustrating teamwork experience from previous online learning, the individual difference in perceptions of responsibility and learning habits (organized or not), and the lack of familiarity of peers. One week's online introduction cannot construct trust across the distance.

Based on these findings, the researcher tends to believe that in spite of the instructor's community initiative in instructional context design, a sense of community has not been developed among students. As Lock (2002) argues, a community-promoting virtual learning environment will not ensure the forming of community. It is students' initiative and active participation cultivates the forming of virtual learning community.

Some particular pedagogical issues, as this case reveals, should be taken care of in order to assist students to make a shift into community philosophy and actions:

- *Awareness of a learning community framework at the inception*: The participants should be aware of community philosophy and how it works at the inception period. As Shapiro and Levine (1999) recommend, students need to be open and to be willing to reframe their roles as learners. Lock (2002)

also proposes, "It is the informed initiative of members and the leadership of the community that influence and foster and sustain the vibrancy and resiliency of an online learning community" (p. 406). Designers and developers of a virtual learning community need to build students' awareness of community model and have support structures in place to foster their shift in thinking and behaviors. For instance, showing role models and explicitly explaining appropriate learning strategies will encourage students to display more investment and commitment into peer support within community context.

- *Constructing guidelines and norms on communication and participation*: Clarification of expected individual behavior and responsibility is necessary when planning a virtual learning community. As Lock (2002) explained, the construction of norms can be first directed by instructor then modified or developed by students.
- *The instructor's role and heavy load:* As demonstrated by the findings in this case, instructor needs to play an important role (as a monitor, facilitator, and expert) in the learning process, even though the community approach is more student-centered. The instructor's presence and instant feedback are the most active catalyst to support online participations. However, this usually means a heavy load on the instructor part. A strategy to reduce instructor's load may be the leadership development: students who play the leadership role are able to initiate and organize the community learning voluntarily.
- *Small group verse class community:* It is also noticed that in this case participants have a stronger sense of interaction with peers in their groups rather than the general class community. This kind of task-oriented group-based interactions, to some degree, has hindered the development of sense of connection to the class community.

Suggestions for Future Research

Bounded by timing, this case study has not done a follow-up data collection of participants' perspectives and activities beyond the course. As Brown (2001) indicates, participants may be involving in long-term interactions that are beyond the course cycle. Therefore, a follow-up study on people who involve in long-term learning affiliations with others may be desirable. In addition, an evaluation research on measuring the development stages of virtual learning community construction is also necessary. Finally, how can the leadership role be supported and nurtured with the purpose of fostering virtual learning community development is also an important research question to be explored.

References

Barker, P. (2001, June). *Creating and supporting online learning communities.* Paper presented at World Conference on Educational Multimedia, Hypermedia & Telecommunications. Proceedings, Tampere, Finland.

Besser, H. (1996). Issues and challenges for the distance independent environment. *Journal of the American Society for Information Science, 47,* 817-820.

Brown, J. S., & Dugid, P. (2000). The social life of information. Cambridge: Harvard Business School Press.

Brown, R. E. (2001). The process of community-building in distance learning classes. *Journal of Asynchronous Learning Networks,* 5 (2).

Carr, S. (2000). As distance education comes of age, the challenge is keeping the students. *Chronicle of Higher Education, 46,* 39-41.

Comeaux, P. (2002). *Communication and collaboration in the online classroom: Examples and applications.* Williston: Anker Publishing Company, Inc.

Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions.* Thousand Oaks, CA: Sage.

Cubbert, A. F., Clark, D. B., & Linn, M. C. (2002). WISE learning communities design considerations. In K. A. Renninger & W. Shumar (Eds.), *Building virtual communities*. (pp. 215 – 246). New York: Cambridge University Press.

Davidson-Shivers, G. V., Muilenburg, L. Y., & Tanner, E. (2001). How do students participate in synchronous and asynchronous online discussions? *Journal of Educational Computing Research, 25,* 351-366.

Haythornthwaite, C., Kazmer, M. M., Robins, J., & Shoemaker, S. (2000). Community development among distance learners: Temporal and technological dimensions. *Journal of Computer-Mediated Communication, 6*. Retrieved, November 23, 2003, fromhttp://www.ascusc.org/jcmc/vol6/issue1/haythornthwaite.html

Herrington, A., Herrington, J., Oliver, R., Stoney, S. & Willis, J. (2001, December). *Quality guidelines for online courses: The development of an instrument to audit online units*. Paper presented at the Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education, Melbourne, Australia.

Hiltz, S. R. (1998, November). *Collaborative learning in asynchronous learning networks: Building learning communities.* Paper presented at WebNet 98 World Conference of the WWW, Internet, and Intranet Proceedings, Orlando, FL.

Hung, D., & Chen, D. (2002). Learning within the context of communities of practices: A re-conceptualization of tools, rules and roles of the activity system. *Educational Media International, 39*, 247-255.

Jin, Q., Ma, J., Huang, R., & Shih, T. K. (2001, June). *Design principles of an open agent architecture for web-based learning community*. Paper presented at ED-Media 2001 World Conference on Educational Multimedia, Hypermedia & Telecommunications. Proceedings, Tampere, Finland.

Jonassen, D. H., Peck, K. L., & Wilson, B. G. (1998). Creating technology-supported learning communities. April 4, 2004 retrieved from http://carbon.cudenver.edu/~bwilson/learncomm.html.

Kerka, S. (1996). Distance learning, the internet, and the world wide web. Retrieved November 23, 2003 from ERIC database.

Kong, A. (2002, May). *Scaffolding in a learning community of practice: A case study of a gradual release of responsibility from the teacher to the students*. Paper presented at the Annual Meeting of the International Reading Association, San Francisco, CA.

Kong, A., & Pearson, P. D. (2002). The road to participation: The evolution of a literary community in an intermediate grade classroom of linguistically diverse learners. Retrieved November 23, 2003, from ERIC database.

Kowch, E. & Schwier, R. (1997). Considerations in the construction of technology-based virtual learning communities. *Canadian Journal of Education Communication, 26*(1), 1-12.

Kuhl, D. (2002). Investigating online learning communities. Retrieved December 8, 2003 from ERIC database.

Kutti, K. (1996). Activity theory as a potential framework for human-computer interaction research. In B.A. Nordi (Ed.), *Context and consciousness: Activity theory and human-computer interaction*. Cambridge: MIT Press.

Lally, V., & Barrett, E. (1999). Building a learning community on-line: Towards socio-academic interaction. *Research Papers in Education Policy and Practice, 14*, 147-63.

Lock, J. (2002). Laying the groundwork for the development of learning communities within online courses. *Quarterly Review of Distance Education, 3*, 395-408.

McLoughlin, C. (2000). Cultural maintenance, ownership, and multiple perspectives: Features of web-based delivery to promote equity. *Journal of Educational Media, 25*, 229-241.

McMillan, D. W. * Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of Community Psychology, 14*(1), p. 6-23.

Moller, L. (1998). Designing communities of learners for asynchronous distance education. *Educational Technology Research and Development, 46*(4), 115-122.

Mugler, F., & Landbeck, R. (2000). Learning, memorization and understanding among distance learners in the South Pacific. *Learning and Instruction*, 10, 179-202.

Murphy, T. H., & Lindner, J. R. (2001). *Building and supporting online learning environments through web course tools: It is whippy, but does it work?* Paper presented at the Annual Meeting of the Southern Association of Agricultural Scientists: Agricultural Communications Section, Fort Worth, TX.

O'Sullivan, M., & Miron, D. (2000). Building a learning community online in a second year computer science unit. April 4, 2004 retrieved from: http://ultibase.rmit.edu.au/Articles/online/sullivan1.htm.

Palloff, R. M., & Pratt, K. (1999). *Building learning communities in cyberspace: Effective strategies for the online classroom.* San Francisco: Jossey-Bass Publishers.

Powers, S. M., & Mitchell, J. (1997, March). Student perceptions and performance in a virtual classroom environment. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Prestera, G. E., & Moller, L. A. (2001). Exploiting opportunities for knowledge-building in asynchronous distance learning environments. *Quarterly Review of Distance Education, 2*, 93-104.

Quitadamo, I. J., & Brown, A. (2001, June). *Effective teaching styles and instructional design for online learning environments*. Paper presented at National Educational Computing Conference, Chicago, IL.

Ravitz, J. (1997, February). An ISD model for building online communities: Furthering the dialogue. Paper

presented at National Convention of the Association for Educational Communications and Technology, Albuquerque, NM.
Rovai, Alfred. (2002). Building sense of community at a distance. *International Review of Research in Open and Distance Learning, 3*(1).
Russell, M. (1999). Online learning communities: Implications for adult learning. *Adult Learning, 10*, 28-31.
Russell, M., & Ginsburg, L. (1999). Learning online: Extending the meaning of community. Retrieved November 12, 2003 from ERIC database.
Schrum, L. (1995, July). *Online courses: What have we learned?* Paper presented to the World Conference of Computers in Education, Birmingham, England.
Shaw, G., & Marlow, N. (1999). The role of student learning styles, gender, attitudes and perceptions on information and communication technology assisted learning. *Computers & Education, 33*, 223-234.
Shapiro, N. S. & Levine, J. H. (1999). *Creating learning communities: A practical guide to winning support, organizing for change, and implementing programs*. San Francisco: Jossey-Bass Publishers.
Shrivastava, P. (1999). Management classes as online learning communities. *Journal of Management Education, 23*, 691-702.
Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, California: Sage Publications.
Swan, K. (2001). Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses. *Distance Education, 22*, 306-331.
Snyder, M. (2002). The design of online learning communities for older adults. *Journal of Instruction Delivery Systems, 16,* 27-33.
Tinto, V. (1993). Building community. *Liberal Education, 79*, 16-21.
Underwood, J., Underwood, G., & Wood, D. (2000). When does gender matter? Interactions during computer-based problem solving. *Learning and Instruction, 10*, 447-462
Wang, C. Y., Resta, P. E, & Miller, P. (2001, November). *The medium is the message - the design of an online collaborative learning community.* Paper presented at the National Convention of the Association for Educational Communications and Technology, Atlanta, GA.
Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity.* New York: Cambridge University Press.
Yoder, M. B. (2003). Seven steps to successful online learning communities. *Learning & Leading with Technology, 30,* 14-17.