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An examination of asynchronous communication experiences and perspectives of students in an online course: a case study

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Abstract

The purpose of this qualitative case study was to explore the asynchronous communication perspectives and experiences of undergraduate students in an online course. Interviews with 22 preservice teachers, student-to-instructor email transcripts, asynchronous discussion transcripts, and two independent reviewers' reviews of the asynchronous discussions were used to collect and analyze the data. The results of this study have implications for the effective design of asynchronous communication, and interaction between student and instructor, between student and student, and between student and content. The results inform researchers and practitioners of the factors, strategies and barriers that need to be taken into account, and suggestions for how to overcome barriers when utilizing asynchronous communication tools for learning. A comprehensive understanding of computer-mediated communication tools and student preferences and experiences can contribute to a knowledge base for effective planning and implementation of successful learning.

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1. Introduction

The convergence of technological, instructional, and pedagogical developments (Bonk & King, 1998a) has helped a new paradigm of teaching and learning emerge. Web-based education is impacting current university practices and policies and quickly changing the fabric of higher education (Rowley, Lujan, & Dolence, 1998). This type of education has the potential to provide a catalyst for a total reconceptualization of education in general (Daugherty & Funke, 1998). Advocates of the use of new educational technologies have asserted that effective instruction with technology must be driven by sound pedagogical principles (MacDonald, Stodel, Farres, Breithaupt, & Gabriel, 2001). Discussing the technical features of the Web alone does not help explain the pedagogical processes associated with Web-based instruction (Jung, 2001). An in-depth understanding of the attributes and the pedagogy of web-based instruction is important for successful utilization of technology tools for learning.

Student perspectives and experiences can provide an in-depth understanding of the effectiveness of web-based learning. The communication experiences of students need to be studied in-depth to analyze the effects of computer-mediated communication in online learning. An increase in the amount of communication messages alone does not necessarily imply an increase in the quality of learning. It is important to gain an understanding of the dynamics of computer-mediated communication between student and student and between student and instructor. Examining the communication experiences and perspectives of online students can help instructors design effective communication practices using asynchronous communication tools.

The purpose of this qualitative case study was to examine the asynchronous communication experiences and perspectives of undergraduate preservice teachers in an online course. The following two questions guided the study:

1. What are the implications of asynchronous communication on student learning?
2. To what extent does asynchronous communication and interaction enhance student learning?

2. Computer-mediated communication

Computer-mediated communication tools have great potential for changing student and faculty interaction and may prove influential in reorganizing the learning process (Bonk & King, 1998b). A web of learning interactions occurs when instructors and learners collaboratively construct knowledge (Palloff & Pratt, 1999). The online environment is particularly appropriate for collaborative learning approaches that emphasize group interaction (Harasim, 1990). Interaction among students and between students and instructor is key to the learning and collaboration that result from these interactions (Palloff & Pratt, 1999).

Social interaction among learners plays an important part in the learning process and can have a significant impact on learning outcomes. According to Grabinger and Dunlap (2000), “learning occurs in a social context through collaboration, negotiation, debate, peer review

and mentoring” (p. 37). Collaboration and cooperation can provide learners with the opportunity to discuss, argue, negotiate, and reflect upon existing beliefs and knowledge (Agostinho, Lefoe, & Hedberg, 1997). Grabinger and Dunlap (2000) note that collaboration helps learners validate their learning experiences, and requires a level of articulation that promotes collective knowledge building and a deeper understanding of what is being studied.

With the support of peers as well as the instructor, students are more likely to achieve goals they may not have been able to meet on their own (Grabinger & Dunlap, 2000). Scaffolding can be implemented to motivate the learner, reduce task complexity, provide structure, and reduce learner frustration. Providing feedback, examples, peer support and communication, and clarifying roles and expectations of the learners can help scaffold student learning (McLoughlin & Marshall, 2000).

Asynchronous communications may have limitations that may minimize the richness of communication and impede student learning. The absence of low level of social cues and emotions such as body language may influence student learning and interaction. This aspect can set the stage for more uninhibited behavior on the part of students than would occur in face-to-face conversations as well as misunderstandings and misinterpretations (Berge, 1997). Research findings indicate that shy students tend to participate more in online than in traditional environments. On the other hand, students who are outgoing and verbally expressive might avoid writing or posting in online discussions (Palloff & Pratt, 1999). Understanding student characteristics for effective communication in online learning is essential for impeding the limitations of asynchronous communication.

3. Method

A qualitative case study approach forms the methodological framework of this study. The case study results in a rich and holistic account of a phenomenon anchored in real-life situations and offers insight and expands the readers’ experiences (Merriam, 1998) in their construction of knowledge (Stake, 1994). To some extent, case materials can parallel actual experience feeding into the most fundamental processes of awareness and understanding of a case study (Stake, 1994).

3.1. *The setting and the participants*

Each quarter, six or seven sections of the course “Technology Applications in Education” are offered for undergraduate preservice education majors in the College of Education of a large Midwestern university. During Spring Quarter 2001, one section of “Technology Applications in Education” course was offered online for residential preservice teachers. Twenty-two students, 17 females and 5 males, completed the course. Only two of the students had taken an online course prior to the course. The instructor of the online course is the researcher in this study.

The course provided a foundation towards growth of computer competency to improve teaching and learning. Students were introduced to several tools and technology integration

practices to effectively use computers to enhance classroom instruction, communication, and management. The course derived its objectives from the International Society for Technology in Education (ISTE) National Educational Technology Standards for Teachers (NETS). The ISTE (2001) standards were categorized as follows: (a) technology operations and concepts, (b) planning and designing learning environments and experiences, (c) teaching, learning, and the curriculum, (d) assessment and evaluation, (e) productivity and professional practice, and (f) social, ethical, legal, and human issues.

The instructor used techniques for scaffolding and motivating students through email interactions and social and interpersonal outreach strategies. She responded to the student emails within 48 hours and posted weekly feedback to the whole class and to each student on their participation and performance. This was implemented either by email or the course management system, BlackBoard.

The instructor used an asynchronous discussion forum in BlackBoard. There were six discussion groups composed of three to five students from similar or same specialization areas. The instructor's purpose was to engage students in discussing and analyzing issues and concerns with respect to using technology in education and technology integration. The group size was kept small to prevent information overload and to ensure that students read each other's responses and engaged in interaction. There were six discussion questions of which three required collaboration among students. The discussion questions and activities were in majority real-life problem-solving situations that students would encounter in their teaching profession. The activities required the students to do their readings from the course book as well as exploring available websites. For example, one question was about classroom management when using computers.

Assume that you have three computers in your classroom and you have 25–30 students. As a team of teachers, you are exploring different ways of managing the student activities, rotation and assisting the students. You need to consider the equity issues when students are engaged in using the computer. Post your suggestions in your group area about different ways of managing the student activities and assisting the students.

Each person in your team will add one idea and then pass the list to the next person in the team until your group has exhausted each individual's ideas. Then the second group member is to act as the judge to rank the top four/five ideas in your group and post it to the class discussion area. The judge will also need to choose one of the ideas and create a product (e.g. technology poster) and post it to the class discussion area.

The judge gets up to 20 points, other members each get up to 10 points.

In addition to the small discussion groups, the instructor initially created a "Help and Tips" forum where students and the instructor could post information to share. There was also a "Frequently Asked Questions" (FAQ) forum posted by the instructor to answer questions students might have to clarify her expectations. Additional questions and answers were added during the quarter. Creating a FAQ forum may help online instructors to provide convenient, easy to access, and continuous feedback in an organized way. A CoffeeHouse area where students can ask questions to each other and collaborate was created later.

3.2. *Data collection and data analysis*

Multiple sources of information were used to gather data for the study—interviews, student and instructor email transcripts, discussion board transcripts, and two independent peer reviewers' reviews. By using multiple sources for data collection, the researcher was able to use different data sources to validate and cross-check findings (Patton, 1990). The data were analyzed by using thematic analysis. The data were coded inductively; the analytic process was recursive, as analysis projected further decisions on data exploration and data analysis.

Independent interviewers were asked to interview students to prevent bias and ensure credibility. The students were told that the interviews would not affect their grades in any way nor the instructor's attitude towards them. In addition, two peer reviewers who had taught the "Technology Applications in Education" course, were asked to examine the discussion board transcripts.

Data triangulation was used in this study for securing an in-depth understanding of the phenomenon in question (Denzin & Lincoln, 1994). The researcher designed triangulation as an ongoing process that included using multiple sources, double-checking findings, considering rival explanations, and checking for relationships that converge (Miles & Huberman, 1994).

3.2.1. *Student and instructor email transcripts*

All of the email transactions between the instructor and the students were saved for data collection and analysis purposes. The email interactions were important to analyze the dynamics of the class, learner characteristics, what kind of feedback or help students needed in the facilitation of this online class, and how the email interactions supported student learning.

3.2.2. *Discussion board transcripts*

Interactions in the asynchronous group discussion board were transcribed and analyzed to understand the interactions and strategies the students used in a text-based asynchronous conferencing tool. Additionally, areas for students to use, such as the FAQ and CoffeeHouse, were used for data collection and analysis. These documents were used to understand the nature of the class and the design of the activities and to examine the types of learning and interactions the students experienced.

3.2.3. *Interview questions*

Informal, semistructured interviews were conducted starting the fifth week of the 10-week quarter. Twenty-two students were interviewed for data collection. Constructing a semi-structured interview allowed the researcher to include questions related to emerging themes as data were collected and analyzed. To ensure credibility and trustworthiness of the responses sought from the students, three independent assistants conducted the interviews. The independent assistants were informed of the context of the course and the research regarding the purpose of the research, the research design, and course content. The interviewers were told that they do not need to limit their questions to the researcher's questions. They were

encouraged to ask questions from their own insight and curiosity depending on how the interviewee responded. Discussions were conducted with the independent interviewers after each interview. This allowed the researcher to revisit and clarify issues for data collection and analysis.

3.2.4. *Discussion board reviews by peer reviewers*

Two independent peer reviewers examined the discussion board transcripts for collaboration, interaction, reflection, and differences in groups and group learning as well as instructor input from the discussions.

4. Findings

4.1. *Anonymity and transactional distance*

In the present study, computer-mediated communication has opened new ways for the students to communicate with the instructor for learning interactions. All students pointed out that the online environment gave them the opportunity to ask more questions to the instructor. It was interesting that all the students mentioned that they worry about the way other students perceive or think of them when asking a question in the face-to-face classroom. This was a deterrent factor for a lot of the students to communicate their questions or ideas in the face-to-face classroom, because the students did not want to “look stupid.” Jill said, “Students can be more open [in the online environment]. I think people participate more when they are not so worried about how they are being perceived.” Sarah commented,

[online classroom] is free in being more anonymous and you can express your feelings and ask more questions without worrying about what other people think about you . . . I ask more questions [in the online class], so I am more clear on things and it just expands what I am learning.

In contrast, computer-mediated communication was a drawback in terms of collaboration among the students. The majority of the students in this study did not engage in any face-to-face or email interaction with their classmates or teammates. The students seemed to be uncomfortable about interacting with the students who they did not know beforehand. Heather, who was absent during the course orientation due to her late registration, said she looked at the student homepages in BlackBoard to see if she knows any of the students. She said, “I didn’t know any of the students [in the online class]. There is really no way for me to seek them out face-to-face unless I email and say, “Meet me,” but then they may think I am creepy or something.” Krissy too indicated that she was hesitant to email other students. She said, “I don’t know any of the people that are in my class . . . so I am hesitant to email other students.”

In this study, only a few of the students reported that they emailed their teammates to talk about the discussion forum questions on which they needed to collaborate. Lily was one of

the students who volunteered to email her group and classmates for getting help. However, she did not get any response to her “call-outs.” She commented that her learning was affected by the type of communication in the online learning environment. She said, “It’s harder to communicate because I have a lot of questions. When I ask my group, because we have group discussions, sometimes people do not respond.” She continued, “It gets frustrating. When face-to-face, people will answer your question or they will feel uncomfortable not answering. They won’t just sit there and ignore you. That’s a big difference.” Those students who initiated collaboration messages were frustrated since their messages were often left unanswered by their peers.

Only three students posted questions or comments in the nongraded class discussion forum. One of the peer reviewers who examined the asynchronous discussion transcripts commented in her review that the students did not participate much in the nongraded class discussions. She said,

The class discussions contained thoughtful design with different areas such as the CoffeeHouse, Help and Tips, and FAQ for students with different needs. The postings were less frequent than the group discussions since the class discussion was not required [graded].

4.2. *Connecting with the instructor and peers*

A disadvantage of the online learning the students commonly reported was the lack of “one-on-one relationship” with the instructor. Students sought to construct interpersonal relationships with the instructor. Jill said, “I think professors can be a real good resource for you, especially in your college. If you form some kind of a relationship, later you can go back to them with questions and get help.” The disadvantage of an online course for the students was that the students do not get to know the professor personally. Jill noted, “If you [the students] do not get to know your professors, because you never saw them through an online class, then you don’t have as many resources to fall back on.”

The instructor had used strategies to connect with the students through email, or through the students’ online journals as well as the student discussions. Students commented often that the instructor’s communication have been constructive and encouraging. Emily said, “She’s always been very constructive in her emails. She’s been very positive and encouraging.” About one-third of the students expressed that the communication between the instructor and the students was in the form of “writing back and forth” by email. Esther, who emphasized that interactions are important in her education, said that she missed having the one-on-one interaction with the instructor. She said, “I still feel like I know a little bit about my instructor, but not the same way that I would if I was in a class. I don’t know much about her personality at all.”

The learning interactions or the social environment developed in the face-to-face classroom may not develop in the online classroom. All the students felt that the communication in the online environment is less personal. Josh felt that interactions in the online environment were less personal. He reported, “It [interaction] is not like a person to person interaction. It’s

more like computer to computer interaction.” Esther explained that she thrives when she is around people and she likes the social engagement of being with people. For her, not having interactions with students and the professor was challenging and a barrier to learning. She noted, “That’s how I learn best. So for me the web-based course is very difficult because I thrive on interactions with people, so they [online courses] are very hard.”

4.3. Immediate and consistent feedback

Students mentioned that a disadvantage of not having the teacher in the classroom was the delay of immediate feedback or communication. In the face-to-face classroom, the students can receive answers to their questions right away. However, the responses were delayed in the online environment. One student, John, noted that when you email a question to the teacher “it might take hours, maybe a day or so before you get an answer back for the question.” He continued “if you could ask the question face-to-face, you might get better help where you might not be able to do that with the online course.”

A finding in terms of instructor facilitation of email was that the students expected consistent and timely feedback. [Graham, Cagiltay, Lim, Craner, and Duffy \(2001\)](#) found in their study with online faculty that the faculty gave prompt feedback at the beginning of the semester. However, as the semester progressed, the frequency of responses decreased, and the response time increased. Similarly, in the present study, the students indicated that the instructor’s email response time and grading had slowed down towards the end of the course. The students indicated that they preferred the instructor to be consistent in terms of responding to students’ email and grading student projects.

4.4. Dynamics of communicating in the asynchronous discussion forum and learning

Student experiences and perspectives toward collaborating, communicating, and interaction in the web-based course differed. The learning teams had different dynamics in terms of collaboration and communication. The pedagogical purpose of the discussion questions were somewhat achieved through the discussions at varying dynamics and participation. One peer reviewer wrote her observations and reflection about the group discussions. She said,

The group discussions varied in length and styles depending on the topics and students’ interests. Some students wrote their messages as responses to other members of the group while others posted general comments. Some related their own experiences and others posted evaluations and/or reviews of the readings. The discussions of the process of putting the group project together showed that the group members were communicating and working together to complete the projects. Overall, the quality of the discussions demonstrated that the students were engaging in reading the topics. The instructor contributed to the group discussions.

A few of the students indicated that they did not learn much from each other, because every one of the members responded with similar answers to the discussions. Sarah

commented that the small group learning set-up was not beneficial to her learning. She expressed that the learning teams did not give her the feeling of a cohesive group, but merely a group of people. She said,

I like the [discussion forum] questions, but the learning teams are set up for answering the questions which I could answer directly to her. And not to have to wait for other people to answer it before I can write a paper . . . I personally would rather not do it because it's not a group setting. It is a group of people but it is not a [cohesive] group.

For Esther, in respect to her experiences in the learning teams, there was no social interaction in the group discussions but there was sharing of ideas. She said,

What I really liked was that the instructor has us working in groups which I thought was difficult to do online. So you don't have the social interactions but you are able to share ideas back and forth. I learn better when I have to work with other people so that's been really beneficial to me.

Esther explained more about her experiences and feelings about the learning team communication and interaction. She said, "that's been really good because you've been able to see the responses of other people. I still don't know anything about them, but they write well." She continued, "So it [the type or the amount of interaction/communication] is not ideal for me. It is better than nothing so I do appreciate that."

Student experiences in two of the teams were frustrating due to some of the team members' noncooperation. Those students emailed the instructor and asked her how they should handle the situation. One student wrote, "It is difficult to write the [collaborative] paper over the Internet without physically seeing each other." Erica said, "One time we had a group discussion question and I was the editor for that week. One student in our group hadn't sent the information for us to use so that was frustrating." Erica suggested either eliminating the groups or changing the group discussion question format. She said, "Having to wait on another group member for their information before I can continue on for my assignment is frustrating. Eliminating the groups or just kind of changing the homework a little bit will be good."

Students in the other four teams indicated that their learning experiences were good in that they had effective communication and they learned from each other. The discussion group members who engaged in communication with other members in the team stated that there was a sense of contributing to group learning among the students. John commented that a few of the discussion questions required collaboration and they had to figure out and think of ideas to contribute to their learning. He said,

In one assignment, we have to keep coming up with new ideas individually and it just keeps going around in a circle from one person to the next . . . so I have to figure out my own ideas to contribute to the group learning.

Angela said that the discussion questions made her "think and research." Angela commented that her experiences were very good with her discussion group even though

she was worried about communication problems they may encounter since they do not see each other face-to-face. She said, “Luckily, I had a good group which was very cooperative but that was one of my concerns; not having them face-to-face even though I can call them or email them. Just the fear of distance, I guess.”

Students commonly expressed that communication in the web-based environment requires clarity and careful construction of the message. One student noted, “You need to know exactly what the instructor wants. Sometimes you are going to have a miscommunication; someone is going to post or read something incorrectly.”

Tammy expressed that she learned about being clear in the words she chooses and different interpretations people can have on an issue or topic. She noted,

You have to be sure that you’re being clear . . . that there is no question about what you’re asking or what you are saying. Online learning made me think a little bit more of how everybody interprets things differently and how I should word certain lectures when I start teaching.

Angela further noted that all the group members had a good understanding about communication and clarity of each other’s expectations. Regarding her experiences with her group learning, she said,

When I was in charge of that writing [collaborative activity] that week, I made sure that my group members knew I wanted their rough drafts before the weekend or by the weekend. So I think communication and being clear about what your expectations is important. My learning team has been very positive. They feel free to ask questions, so do I.

Students expressed that writing in the asynchronous environment helped them to carefully construct and express their ideas. Alicia said, “[web-based learning] definitely made my communication skills a little bit better in clarifying things, being clear about what you want to ask, and what your concerns are. I think writing is really good, especially when students are reflecting on things.” Esther said the discussion questions were not just for writing the answers; they required reflection. Erica commented that the discussion questions, which required research and collaborative work, helped her reflect on the issues that were being discussed. Sarah expressed her feelings about the way people communicate in the asynchronous environment. She said,

In the web-based class communication between people is a lot different . . . With the forum questions students are able to express themselves a lot more, unlike in a classroom setting . . . so I get to learn from other people’s ideas as well as from the teacher’s.

5. Discussion

Transactional distance is often discussed as the physical distance that leads to a communications gap in distance learning (Moore & Kearsley, 1996). In the present study,

with respect to communication with their instructors and peers, student comments imply that transactional distance can prevail either in face-to-face or online classrooms. The students felt that the online environment gives them the advantage of being “anonymous,” which allowed them to ask more questions to the instructor. Computer-mediated communication provided an improved communication between the students and instructor in the online class. Students reported that they hesitated to ask questions or communicate with their instructors in face-to-face classrooms.

In contrast, student comments, with respect to their communication perspectives and experiences with their peers, implied that students were hesitant to contact each other. The online literature suggests that students will not collaborate unless collaboration is structured into the course. [Wilson and Whitlock \(1998\)](#) noted in their research study that the majority of students did not collaborate online with other students or become involved in extra work that was available to them because they said it was too time consuming. With respect to constructing interpersonal relationships with peers, short time duration, such as the 10-week course duration in the present study, may be a limiting factor in the development of interpersonal relationships.

The advantage of being anonymous in the online environment gave the students opportunities to ask more questions to the instructor. [Palloff and Pratt \(1999\)](#), state that online learners may adopt new personas in online learning. With respect to student–student communication, the findings in the present study showed that students can regress communicating with other students. The students indicated that when students do not see each other, they can avoid answering other students’ questions or requests for help. They may not feel morally obligated or pressured to participate in online communication.

One of the findings was that online students sought constructing interpersonal and social relationships with their instructor. Students indicated that the asynchronous discussion questions in groups helped them learn the content. However, due to the lack of the social environment, yet they sought social engagement with their peers similar to face-to-face environments. The distance or online learning literature mentions that isolation is one of the issues that emerge from physical separation between students and instructor. Interpersonal and/or pedagogical relationships were provided to an extent in the web-based classroom; however, this was not comparable or not as strong as it would be in a face-to-face classroom.

Instructor guidance and support as well as peer support are important for communication and learning. Instructors need to be aware of the barriers that can create a communication gap in learning environments. These barriers can be overcome with effective, deliberate planning, and strategies for improved communication between instructors and students and between students and themselves.

The students in the online classroom reported that there is a delay factor that can influence learning and interaction in asynchronous communication. They stated that instructors should give prompt feedback and response for the students’ inquiries and questions. The instructors in online courses should use instructional and communication strategies to eliminate the factor of delay. Either responding immediately or being explicit in the descriptions and assignments can minimize the delay. However, requiring immediate

instructor feedback may result in reliance on instructor response rather than student inquired learning. The social and pedagogical presence of the instructor is essential for improved communication and learning. Yet, online instructors need to be careful in structuring a feedback mechanism to encourage student inquiry and collaboration rather than quick, immediate answer to a question that can itself be a barrier for effective student learning. In addition, instructors should be consistent with the amount of time they provide feedback or response to the students. Inconsistency can cause student frustration and decrease their motivation.

The findings of the present study imply that online instructors need to carefully utilize the Web technologies for collaboration and interaction. Merely providing discussions or collaborative activities does not mean that students will actively participate in the activity. For example, in the present study, only a few of the students participated in the non-collaborative asynchronous forums such as the CoffeeHouse or the Help and Tips areas that were created by the instructor.

The collaborative strategies and the type of the discussion questions can influence student reflection and building of shared experiences in an online learning classroom. The findings in this study have implications for teaching and learning environments in order to enhance or support collaborative, reflective, and meaningful learning. The students had varying experiences and perspectives with respect to their collaboration, interaction and learning within their learning teams. Careful construction, clarity, and writing of the messages in the asynchronous computer environment are important for effective communication of the message. The instructors should facilitate activities for students to be open to communicating or interacting with each other. Icebreaker activities or dyads can help students to get comfortable in starting dialogue for collaborative learning and be a part of a group working towards accomplishing a goal. Creating a community of learners can improve student motivation and help facilitate interpersonal/social interaction sought in an online classroom.

6. Conclusion

This case study explored the asynchronous communication perspectives and experiences of undergraduate students in an online course. Results of this study are important for instructors to rethink their practices in terms of communicating with their students and providing effective instructional strategies for improved communication and collaboration among students. Instructors who are teaching online need to understand student expectations and motivations in the online environment, the personas they may take during online learning. Instructors need to know the group processes and dynamics as well as strategies of how to engage students in effective communication and learning.

According to [Palloff and Pratt \(2001\)](#), traditional courses do not necessarily prepare students for the level of interdependence required in an online course. Students need to learn to adapt in order to gain learner autonomy as well as learn strategies for effective collaboration. Group processes and how collaboration can be facilitated need to be taught

to students during their education. Students need to learn to become active learners and seek active learning strategies in their online learning experiences.

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