Understanding Computer Mediated Social Experience: Implications for CSCL

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Abstract. A group of 9 graduate students and one faculty member formed an extra-curricular study group to explore the social nature of online learning. Following a review of literature and adopting Strauss's (1993) framework for coming to understand social activity, the group collected and analyzed interview reports of experiences of social learning and online systems. The results include five categories of responses: 1) task engagement, 2) social engagement, 3) environment engagement, 4) goal or motivation and 5) role of expert. The paper presents the positive and negative statements about social engagement and the role of expert in gaming and learning experiences and in online and face-to-face experiences.

Keywords: online learning, face-to-face learning, networked multiplayer games, social engagement, role of the expert

INTRODUCTION

Situativity theories emphasize the social nature of cognition and learning (Barab & Duffy, 2000; Brown, Collins, & Duguid, 1989; Resnick, 1987). Lave and others (Lave, 1988; Lave & Wenger, 1991) using anthropological approaches have shown that meaning and identity are constructed from social interactions. Wenger's Social Theory of Learning (Wenger, 1998) argues that we learn through participation in activities and that knowledge can be best understood as our ability to contribute to valued practices. Participating in a social unit provides meaning to experiences and activity, and provides shared perspectives and resources for sustaining engagement in activity. Thus the social nature of experience provides motivation for engagement, leads to joint enterprise, and shapes what is learned.

Online learning is a growing part of higher education, both as distance learning and as supplements to traditional coursework. Simultaneously with the increase in use of asynchronous instruction, technological capabilities for enabling new social mechanisms for participation and contribution via the Internet are advancing. However, most course management tools and implementations of online learning focus on information exchange and fail to support the interactive and social processes of teaching and learning. Online learning is often criticized by students as lacking the vitality and spontaneity of the face-to-face classroom. Understanding how students experience online learning, how they participate and contribute, and how to best enable participation in online learning are key challenges for the development of online learning systems and practices that will support collaborative and social learning.

This study seeks to build new knowledge about how students participate in online learning and how they experience the social nature of computer mediated environments (Dourish, 2001). Following Strauss's guidance (1993) for how to formulate, elaborate and present a "theory of action," the work presented in this paper is an early step in formulating a theory of online interaction (or social computing) in education. For Strauss, individual practices and meanings are defined by the social worlds in which they take place. Strauss's work and other social interactionists (Dewey, 1934 & 1938; Goffman, 1967; Mead, 1938) argue for understanding how participants experience their social world and their collective activities.

This paper presents results from interviews about the experience of playing networked multiplayer games, participating as a student in online learning courses, and participating as a student in face-to-face traditional classrooms. Networked multiplayer games represent online social activity with learning outcomes but without explicit educational objectives. Online learning systems represent online social activity with explicit educational objectives. And, traditional courses represent face-to-face social activity with explicit educational objectives. We reasoned that by examining and comparing online learning with networked games, which are recognized as highly engaging, we would develop insights about how participation is developed and sustained. Similarly we reasoned that by examining and comparing online learning with face-to-face learning, for which instructors and students have many models and substantial experience, we would develop insights about how social environments are used to facilitate learning. Thus, the purpose of examining these three domains of social activity was to identify important dimensions of how technology mediates social experience and how the social nature of activity motivates participation and supports learning.

LITERATURE REVIEW

Research has shown that effective teachers have a number of pedagogical approaches to help students socially construct knowledge through discourse and collaboration in face-to-face classrooms (Kumpulainen & Wray, 2002; Lemke, 1990; Rogoff, 1990). Rovai (2002) compared seven traditional face-to-face courses and seven online university courses delivered by a typical course management system. He found no differences in sense of community (including spirit, trust, interaction and learning) between the groups, but discriminant analysis showed student perceptions of the importance of learning, thinking critically in the course, safety and acceptance were higher in the online courses, whereas student perceptions of friendship, group identity, connectedness, similarity of learner needs, and absence of confusion were higher in the traditional courses. Pérez-Prado and Thirunarayanan (2002) also explored students' perceptions of learning experiences by comparing an online and a face-to-face section of the same university course. Students in both sections indicated that interacting with peers fortified the learning process and made learning more enjoyable; but only students in the face-to-face section indicated that they were affectively stimulated by certain class activities and interactions. Swan's (2002) research showed students participating in online discussions strove to increase social presence by using text-based verbal immediacy behaviors to reduce the psychological distance they felt in the online course. Her findings also indicated student satisfaction, perceived learning, perceived interaction with the instructor, and perceived interaction with peers were highly interrelated. That is, the more interaction students believed they had with the instructor and other students, the more they were satisfied with their course, and the more they thought they learned. Additionally, students' social ability has been identified as an important attribute for supporting meaningful interactions in online learning environments (Laffey et. al., 2005). In Laffey et al.'s study, students perception of their social ability was found to differ across course types: primarily self-paced, teacher guided instruction, and collaborative interactions with peers.

Several studies have examined the social side of networked multiplayer gaming (e.g., Choi & Kim, 2004; Ducheneaut & Moore, 2004a; Ducheneaut & Moore, 2004b; Steinkuehler, 2004). These research efforts highlight the importance of the social dimension of gaming and the social skills of game players for developing customer loyalty with games. Steinkuehler (2004) found that game players learned a new game and developed their expertise through interaction with more knowledgeable and skilled game players. In addition, Ducheneaut and Moore (2004b) found that social interactions were further encouraged by the use of buddy lists among game players. Social interactions in networked gaming environments are experienced as immediate and intuitive. For instance, game players received immediate feedback about their performance from other players and the system to improve their gaming skills (Steinkuehler, 2004). In addition, they are also socialized in the game (Ducheneaut & Moore, 2004b). Players learned how to effectively communicate and collaborate with other players by using different communication tools in order to accomplish game tasks.

METHODOLOGY

The sample included 18 subjects in a higher education setting who were expected to have experience with gaming and courses. The demographic information for participants is shown in Table 1.

Table 1: Demography of Participants

Gender	n	%	Age	n	%	Background	n	%	Status	n	%	Experience with mode	n	%
Male	13	72	20-24	6	33	American	9	50	Undergraduate	2	11	Exp with all modes	12	67
Female	5	28	25-29	4	22	International	9	50	Graduate	14	78	Exp with F2F and online courses	3	17
			30-32	8	45				Employees	2	11	Exp with F2F course & games	2	11
												Exp with games	1	5
Total	18	100		18	100		18	100		18	100		18	100

Interviews were conducted via telephone, face-to-face, or electronic messaging. The interview was semi-structured and included 21 questions designed to elicit participant's experiences in networked multiplayer games, online learning, and face-to-face classrooms and to gather subjects' perspectives on similarities and differences among those experiences. Sample interview items include: 1) Tell me about the experience and what it was like in the game (or course); 2) How did you interact with other people in the game (or course)?; and 3) Do you see similarities or differences between courses and games? In each mode subjects were prompted to think about their favorite game or course to discuss. All interviews were transcribed and imported into Nvivo for coding and categorizing student experiences. Five researchers reached consensus about the coding scheme through negotiation followed by examining the valence of the statements and counting its frequency based on categories in each mode.

RESULTS

Table 2 shows the 5 categories used to code and cluster the interview statements made by respondents. The first number represents the frequency of statements and the second number, in parenthesis, indicates how many of the 18 subjects made a statement that fits in the category. Due to page limitations, only the results categorized as social engagement and the role of expert will be discussed in this paper.

Table 2: Codes and Categories of Interview Statements

Category	Experience in Networked Multiplayer Game		Experience in Online Course		Experience in Face-to-Face Course	
	Positive Statements (No. of Subjects)	Negative Statements (No. of Subjects)	Positive Statements (No. of Subjects)	Negative Statements (No. of Subjects)	Positive Statements (No. of Subjects)	Negative Statements (No. of Subjects)
Task Engagement	22 (10)	7 (5)	19 (13)	3 (3)	10 (7)	8 (8)
Social Engagement	10 (6)	5 (3)	6 (6)	13 (7)	9 (7)	3 (3)
Environment Engagement	7 (6)	8 (8)	6 (6)	6 (6)	1 (1)	3 (3)
Goal or Motivation	7 (7)	1 (1)	3 (3)	2 (2)	5 (5)	0 (0)
Role of Expert	1 (1)	0 (0)	4 (4)	3 (3)	11 (6)	1 (1)

Social Engagement

Respondent descriptions of gaming experiences included numerous comments about the enjoyment and excitement of its social nature both as a competitive and as a collaborative effort. Collaboration was experienced as a key and natural part of the activity. For example, some of the respondents described the experience of collaborating with others in gaming:

> "It was fun to win a game regardless, but what was really fun was when you worked together to overcome a substantial challenge."
> "If I work with other and beat Diablo, I feel someone can share the excitement with me."
> "It's different kind of fun when playing with friends. It's like picnic with other friends vs. eating by yourself."

Competition with others was dynamic and challenging, but since the stakes are low, in the sense that one can always start over once he/she loses the game, there is not too much pressure and thus the game could be enjoyed. For instance, respondents mentioned:

> "The games are kind of optional, and for fun, but class is mandatory. I can quit the game at anytime, but I have to study in the classroom."
> "The game is for fun, you can lose in the game and still be happy about the experience."

Respondent descriptions of online courses show that their experiences were highly dependent on the instructor. Instructors' course design, guidance and style, and frequency of responses to discussions influenced how students felt about the course. Additionally the sense of presence of others was an important attribute related to an online course being considered good or bad. When students received timely feedback from the instructor or peers in online discussions they appreciated and enjoyed the experience. Some sample comments are:

> "There were always other students online at the same time to ask questions or talk about the assignment together."
> "In the discussion, like a real class discussion, we gave feedback to others and said 'yes you are right, you did good job' or 'I don't think that I agree with you, you are wrong, or you miss some points'."

However, as expressed by our respondents, confusion, miscommunication, delay, and lack of a sense of presence are substantial aspects of the social life of online learning. Respondents indicated that they benefited from having more time to think deeper when they post their ideas. However, delays in responses, misunderstandings caused by the lack of gestures and facial expressions, and unclear text-based information tended to increase their level of frustration in online learning. Note that in table 2 the number of negative comments and the number of respondents making negative comments about the social engagement of online courses was substantially greater than the other two modes. Some examples of respondent comments are:

> "If you don't get quality feedback it makes for a horrible online course."
> "Students cannot see the instructor, there's more chance of mis-communication than talking face-to-face. It takes much more energy for the student to make clear a question, especially when he is still at the stage of learning to ask the correct question in the course"

Respondent descriptions of their face-to-face classes indicated that the social experience was stimulating and gratifying. The classroom atmosphere included social presence as well as pressure to perform. Respondents felt that the pressure to perform was both a bad thing and a good thing. For example, students reported:

"Since this is the face-to-face class, I can feel the learning atmosphere in the classroom. Sometimes, I might be "idle" (lost my mind) in the class; however, when feeling my peers are so eagerly joining the discussion, I will feel guilty and will get myself back right away."

"The best way for me to learn is when I have an emotion flowing through me... like happiness, sadness, embarrassed, excited. I think it is easier for that to happen in a real classroom with other people.

"I do better when I am under pressure."

In contrast, other respondents described concerns for what others might think about them:

"Sometimes I have a hard time to understand my classmates during the group discussion. People from different countries have different accents. In the group discussion, it is not polite to express that I don't understand what s/he tried to say and I am not able to have help from my instructor."

"Some times you are just not comfortable with your level of understanding compared to the whiz kids."

Role of Expert

In online games the game players experience experts as a natural part of the activity. Whether the expert is competitive or cooperative with the subject one can learn from the more experienced players:

"I like to get help when playing games, that means you can play better and go to the high levels more easily."

In online and face-to-face courses the instructor's role is critical for guidance, motivation and feedback. For example, here is a positive and a negative response related to the instructor's role in online courses:

Positive response: *"The instructor who teaches in this class usually gives feedback and grades very quickly. Immediate feedback from peers or instructors can help me shape or correct my thoughts."*

Negative response: *"The quality of the on-line course depends on how much responsibility the instructor is willing to take. On-line course is like business, if you cannot learn much from the instructor, it's a waste of money and time."*

The frequency of positive and negative responses in Table 2 for the role of the expert indicates that the role of the instructor is experienced as more problematic in online courses. One contrast that was noted between face-to-face and online instructions was that in online courses instructors are expected to be highly engaged and active during the times when students are engaged, while the instructors in face-to-face classes seemed to need only be engaged during the class time period. Another distinction was that in face-to-face classes respondents often and easily experience the instructor's enthusiasm and ability to make the course and content come to life. Students find that the face-to-face instructor can motivate them and help them stay engaged in the learning activity. Some informants described their feelings about the instructors:

"I really enjoyed going to it. The instructor used real life examples and anecdotes about what you can do with your new found engineering knowledge into the lecture. It helped engage you."

"The most attractive thing is the instructors' teaching style and attitude. I could feel the instructors' enthusiasm through his excellent lecture."

CONCLUSION

As stated in the introduction the use of online learning continues to grow, and while not presented in this paper, our respondents found task engagement benefits in online learning. However, the characterization of the social nature of online learning found in this study suggests it may miss opportunities for social learning and have hurdles for collaborative activity. In contrast, our findings show that game players experience the game as a sufficient environment for the game and that the social nature of the game is a substantial part of the game experience. The game is a custom environment well crafted to support the synchronous social experiences of collaboration and competition. One caution in interpreting our data is to keep in mind that interviews may elicit certain representations of the experience whereas observation or other approaches may highlight different aspects of the experience. For example, Steinkuehler's (2004) report about her experience of a game vividly depicts the role of an expert in socializing and apprenticing a novice player, whereas in our interviews those characterizations seem to be blended into more general terms of collaboration. Similar to the sufficiency of the social aspects of gaming, instructors in the face-to-face classroom seem able to provide a social atmosphere through personal enthusiasm and strategies to bring the content to life. Instructors in traditional settings seem well practiced and resourceful in making the topic and social context a more deeply felt experience than is provided by online text environments. The asynchronous nature of most of the online learning experiences may require new tools and strategies to support the coordination, continuity and richness experienced in games and face-to-face classes.

Our social computing research group plans to further examine the data to make sense of how the task, social context and environment are integrated into the experience of engagement. We plan to extend our data collection through additional interviews and potentially more ethnographic as well as sociological research efforts. Keeping in mind that our efforts to build a theory of action for online learning are still quite rudimentary, Strauss's (1993) guidance suggests that we need both to build explicit descriptions of action while also making sense of the broader social worlds in which those actions take place. The meanings of actions are formed in the social world and interactions generate new meanings and symbols as well as alter and maintain old ones.

ACKNOWLEDGMENTS

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