

Social Presence in Synchronous Hybrid Settings: Being There

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Abstract: This paper is a report of a study that examines learners differentiated perceptions of social presence and interaction in synchronous hybrid courses. Building on social presence theory, this study used an exploratory design to identify face-to-face and online students perceptions of connection to each other and the factors that influence their interaction. Results indicate that face-to-face and online students felt less connected to online students. Both face-to-face and online students reports higher perceptions of connection to classmates over time. The use of robots, instructor's facilitation of the modalities, and the use of small groups all may be important factors that influence interaction and social presence. Implications for future research are discussed.

Introduction

Social presence, a learner's feeling of connection to others in a computer-mediated learning environment (Sung & Mayer, 2012) has been an important topic of study in online courses, with researchers finding that students with higher social presence were more involved in class discussions (Cobb, 2009) and more motivated in academic settings (Yang, Tsai, Kim, Cho & Laffey, 2006). Social presence research has focused on online courses, but it is reasonable to expect that students in synchronous hybrid environments, a blend of both face-to-face and online students, experience social presence, but differently than those who interact solely online, because communication methods and social skill use are different in the mixed modality space. This study explores social presence in hybrid environments and the factors that may influence it.

Kreijns, Kirschner, and Vermeulen (2013) developed a theoretical framework of the elements that influence the social interaction (social presence, sociability, and social space) that is needed for learning. In this framework, social presence is defined as the degree of "realness" of other participants in online learning. They argue that social presence has a relationship with social interaction. While strong social presence is not required for social interaction, social presence helps foster interaction (Tu & McIsaac, 2002; Garrison & Arbaugh, 2007). The relationship between interaction and social presence is reciprocal, and increasing interaction leads to increased social presence (Tu & McIsaac, 2002).

Studies have identified many indicators of social presence. Bringing together previously identified indicators, Sung and Mayer (2012) conducted an empirical study to determine a common set of indicators of social presence. Using exploratory factor analysis, they identified five factors (a) social respect, (b) social sharing, (c) open mind, (d) social identity, and (e) intimacy. This study begins to explore these factors in synchronous hybrid learning environments by focusing on the social respect factor, which reflects the degree to which instructor and students express respect for a students' participation.

This study looked at four questions: (1) Are perceptions of connectedness different for face-to-face and online students in synchronous hybrid classes? (2) Do feelings of connectedness change over time in synchronous hybrid classes? (3) Does social respect lead to feelings of connectedness in synchronous hybrid classes? and (4) What factors influence interaction and social presence in synchronous hybrid classes?

Method

This study used an exploratory design and was conducted in three education courses at a large Midwestern university. Students ($n=34$) participated in the course via the two modalities: face-to-face ($n=24$), online ($n=6$), and both modalities ($n=2$). For most students this was the first synchronous hybrid course they had taken ($n=17$), while 19.4% ($n=7$) had experience with two or more of this type of course.

During the second, tenth, and fifteenth weeks of the course, participants took a 28-item Web-based survey. The questions were based on scale items ranging from 1 (strongly disagree) to 5 (strongly agree). After the completion of the third survey, students were invited to participate in semi-structured interviews, which were recorded as videos. The authors reviewed video transcriptions for themes.

Results

During the study, the 34 students completed $n = 65$ surveys. Of those students, $n=7$ students completed all three surveys, and $n=11$ participated in the interviews.

Perceptions of Social Presence

To address the first research question, we asked students about their perceptions of connectedness to other students. Both face-to-face and online students felt less connected to online students ($M = 3.51$, $SD = 0.92$) than face-to-face students ($M = 4.14$, $SD = 0.79$). Even though students felt least connected to the online students, the online students reported more conversations with students outside of class (online $M = 3.79$, $SD = 0.98$; face-to-face $M = 3.04$, $SD = 1.11$). In looking at the second research question, we found that students' feeling of connection to all classmates and the instructor increased over the term. Results are reported in Table 1.

Acknowledgement and Quick Response Time as Contributors to Social Presence

The third research question sought to identify whether social respect lead to feelings of connectedness. To explore this question we asked students about two social respect factors (1) the acknowledgement of the student's ideas and point of view, and (2) quick responses from others. Students felt that acknowledgement of their ideas or point of view ($M = 4.25$, $SD = 0.77$) and quick responses from other participants ($M = 4.98$, $SD = 0.86$) were important to feeling connected to other participants in the class. They also reported that acknowledgement and quick response time from both the instructor and other students helped them feel connected others. Results are reported in Table 1.

Interview Themes

During interviews, students shared insights about social presence, interaction, and the factors that influence these two elements. We used these interview data to address our fourth research question about the factors that influence interaction and social presence.

Social Presence

As the survey data indicated, student's did not perceive the same level of connection with face-to-face and online students. Face-to-face students identified a different quality to their connection with online students. Hannah felt that "the online students are not like equal to the face to face students in terms of . . .my consciousness." Angelina perceived "the interaction is just richer face-to-face", but she could not identify why the interaction was different. She suggested "it's hard to tell how much of [less frequent participation] is personality and how much of that is the technology barrier."

Some students cited challenges in interpreting nonverbal cues from students across modalities. Brooke found it difficult to interpret the reactions and communication cues of online students. For example, she could not determine "when [online students] weren't interacting, [was] it were because they were not understanding or it was just their personality to be a little more subdued." Charlotte imagined that online students may have challenges reading face-to-face students' nonverbal cues. She said "we could read their [expressions], but I don't think that they could read ours."

Interaction

Just as students felt differences in social presence between the face-to-face and online groups, they identified differences in interaction between through groups. Many of the face-to-face students felt that the online

students participated less. Manish explained “I don’t think the online students felt equally involved.” Similarly Hannah described “we had, like, maybe two or three online students and so they would show up, you know, on the screen and we could see them but they, most of the time, they didn’t talk.”

Both face-to-face and online students thought there were fewer opportunities to informally interact with classmates in the other modality. Elisa explained “[as an] online [student] you miss some of the informal learning that goes on before and after class and during breaks.” Hannah, a face-to-face student, said “sometimes we would have, you know, 15, 20 minute break and so a lot of times, that’s the time when I can get to know other students and talk about other things and develop relationships with them. And of course, that never happened with the online students.” Similarly, Samantha explained “we didn’t have the kind of rapport that I felt we would’ve had if I had been there with [the online students]. You know, ‘cuz you don’t have that opportunity to talk to somebody out in the hallway on break or to say, hey, you know, what did you think of this or, you know, how are you handling this or I have a question about this on the term paper or whatever.”

Several students described the somewhat artificial aspect of interacting across modalities. Elisa explained, that it is “not natural yet for people who are face-to-face to know how to include people who are online. It’s all still very contrived.” Hannah, a face-to-face student, said “when the instructor says, talk to somebody next to you, it was much easier for me to think about the people who were in the room.” Charlotte noticed a difference between the groups in that “things would sort of slow down and seem more individual for the people who were participating online that those of us who were face to face and kind of flow a little more naturally.”

Factors Influencing Social Presence and Interaction

The students’ responses in the interviews suggested three underlying factors that may have influenced social presence and interaction: the use of robots, instructor’s facilitation of the modalities, and the use of small groups.

Partway through the term, some of the classes began using Kubis (tabletop robots that allows the user to control his/her view) and Doubles (driveable robots that controlled by the user). This use of these technologies gave the online students more control over their view and participation. Elisa identified the use of the robot as a positive change to her learning environment. She said “the view was so much better. I could actually turn to look the person who was speaking. It felt much more like you were at the table...I can see them and talk to them, and know who’s talking.” Similarly, Samantha positively viewed her use of a robot: “I had a robot Double...I felt like I was physically present. I could, especially when I was on the robot double, I could zip myself around the room. I could pull myself up right next to my small group.” She perceived a different reaction from her group when she used the robots. She explained “I really felt that [my group members] engaged with me more than when I was the Kubi...it’s like you’re really there.”

The face-to-face students noted the shift to robots as well. Manish explained “I think [the use of robots] was a great leap because. . .I felt the online students were more confident and they felt more involved in the classroom discussions, especially the double robots because they could move around and they definitely felt more involved and I do agree that it kinda leveled the playing field between face-to-face and online students.” Hannah remained more skeptical “I think what made it strange was that because she could move it, it almost made it seem like it was a robotic person. It was like we could see her face on the screen but she could control it. It was almost like it was half person, half robot. . .I think people would have to get used to that.” Angelina’s class did not use the robots, but she thought they would improve interaction between the groups. She explained that “the positioning of the screens showing [the online students] was perhaps not perfect because they were in this sort of omniscient position where they were not at eye level. I’ve heard about other classes using these robots, where there is a physical avatar sitting there that is going to take their place and where, so that they would be more visible and literally at the table and I think that would work better.”

The instructor’s interaction was another factor that influenced interaction and helped online students feel included. Samantha mentioned that the instructor “was very well aware of the fact that she had online students and she had face-to-face students and she really tried to make sure that the online students were engaged in the classroom.” In Angelina’s class she noticed that “it was clear that [the instructor] went out of his way to think, he was thinking about them, you know, and greeting them.” Elisa’s instructor talked about communication rules to give online students “a kind of window into the conversation because otherwise we feel like we’re interrupting.” Elisa also noted that the instructor would do quick check-ins, by making a, “point of looking at the camera wherever we were to make sure we were all there.”

Another factor that may have influenced interaction was the size of the group. In some of the classes, students participated as part of small groups of 3 to 5 students. Manish noted “when we were in smaller groups, we felt more comfortable talking with online students because there was one online student in each group.”

Discussion

Previous research examined social presence and interaction in online environments, but had not looked at these factors in synchronous hybrid environments. The first research question in this study investigated This study found that face-to-face and online students felt less connected to online students. This result suggests that social presence, a construct for primarily online students, plays a role in synchronous hybrid courses. In the interviews, face-to-face students noted less interaction with the online students, which suggests that that the relationship between social presence and interaction seen in online learning environments (Tu & McIsaac, 2002) may exist in synchronous hybrid learning environments as well.

A limitation of this study was the use of social presence, a construct rooted in online interaction, as an influence on interaction. While this construct has been well studied in online environments, it has not been validated in synchronous hybrid environments. Future research should investigate to confirm that this relationship between social presence and interaction exists in synchronous hybrid environment and determine if it is reciprocal as it is in online environments.

Both face-to-face and online students reports higher perceptions of connection to classmates over time. This finding is consistent with social information processing theory, which argues that online participants form impressions of each other based on the accumulation of social interaction over time (Walther, 1992). Through the accumulation of interaction, online groups can create relationships that are equivalent to those of face-to-face groups. This study did not track the students' interaction, therefore future research should explore interaction in hybrid synchronous learning environments and its influence on relational development.

This study investigated the social respect factor which influences online social presence. The synchronous hybrid students in this study felt that social respect indicators influenced their connections to other students. This finding suggests that the factors that influence social presence identified by Sung and Mayer (2012; social sharing, open mind, social identity, and intimacy) may influence perceptions of social presence in synchronous hybrid environments. We did not investigate these factors, therefore the should be explored in future research.

Three topics for future study emerged from the student interviews. The use of robots, instructor's facilitation of the modalities, and the use of small groups all may be important factors that influence interaction and social presence.

Despite the limitations described above and the small number of participants, this study contributes to the research by suggesting that students in synchronous hybrid environments perceive each other differently depending on whether they are participating face-to-face or online. These differing perceptions and types of interaction warrant additional study, and previous research in online social presence and social interaction may provide a useful framework.

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	<u>Face-to-Face Students</u>			<u>Online Students</u>			<u>All</u> <u>Students</u>
	Survey 1	Survey 2	Survey 3	Survey 1	Survey 2	Survey 3	All Surveys
Eligible <i>n</i> (<i>n</i> enrolled)	36 (22)	36 (18)	36 (11)	8 (5)	8 (6)	8 (3)	132 (65)
<u>Feelings of Connection</u>							
To face-to-face students	4.14 (0.99)	4.11 (0.83)	4.27 (0.47)	3.80 (0.84)	4.17 (0.41)	4.33 (0.58)	4.14 (0.79)
To online students	3.27 (1.03)	3.67 (0.97)	3.55 (0.69)	4.00 (0.71)	3.17 (0.98)	4.00 (0.00)	3.51 (0.92)
To the instructor	4.18 (0.958)	4.11 (0.90)	4.36 (0.67)	4.00 (1.23)	4.50 (0.55)	4.67 (0.58)	4.23 (0.86)
<u>Acknowledgement</u>							
Importance of acknowledgement	4.32 (0.72)	4.17 (0.92)	4.27 (0.79)	4.20 (0.84)	4.33 (0.52)	4.00 (1.00)	4.25 (0.77)
Instr. acknowledgement	4.36 (0.58)	4.39 (0.61)	4.45 (0.52)	4.60 (0.55)	4.50 (0.55)	4.33 (0.58)	4.42 (0.56)
Student acknowledgement	4.50 (0.51)	4.44 (0.51)	4.36 (0.67)	4.60 (0.55)	4.33 (0.52)	4.33 (0.58)	4.45 (0.53)
<u>Quick Response</u>							
Importance of quick response	3.86 (0.94)	3.89 (0.90)	3.91 (0.83)	4.20 (0.84)	4.33 (0.52)	4.67 (0.58)	3.98 (0.86)
Instr. response	4.14 (0.89)	4.28 (0.83)	4.27 (0.79)	4.60 (0.89)	4.50 (0.55)	4.67 (0.58)	4.29 (0.81)
Student response	4.27 (0.83)	4.33 (0.69)	4.27 (0.79)	4.40 (0.89)	4.50 (0.55)	4.67 (0.58)	4.34 (0.74)
<u>Connection Out of Class</u>							
Regular conversations	3.32 (1.17)	2.83 (1.04)	2.82 (1.08)	4.00 (0.71)	3.33 (1.21)	4.33 (0.58)	3.20 (1.12)

Table 1: Descriptive Statistics for the Dependent Variables