

Role of the Online Tutor in Establishing Social Presence in Asynchronous Text-Based Collaborative Learning Environments

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Abstract. The main objective of this paper is to provide a better understanding of the online tutor's role in establishing and maintaining the feeling of social presence among the participants in asynchronous text-based collaborative learning environments. The context of the study is a distributed online course involving groups of participants who do not have a shared history of working together. The data were collected from a student survey and follow-up interviews. The study shows how the online tutor's facilitation in such environments is crucial, and several practical implications for online tutors are presented. In addition, complementing the asynchronous text-based learning platform with synchronous tutor-facilitated meetings is beneficial for learners in terms of building common ground, receiving instant feedback from the tutor and engaging in more off-task interactions.

Keywords: Computer-supported collaborative learning (CSCL) · Online tutoring · Social presence · Asynchronous communication

1 Introduction

Online students often experience lack of social connection with other participants, since online learning tends to rely on text-based communication and takes place across time and space [1]. Unlike face-to-face interactions, text-based communication lacks non-verbal cues, such as facial expression and posture, in addition to what is actually verbalized [2, 3]. Moreover, asynchronous communication usually implies long pauses and waiting for feedback from peers. This disconnection may affect student performance [4], and socio-emotional support may become critical for reaching the learning outcomes [3].

The feeling of social presence in an online community is one of the keys to promoting collaborative knowledge building [2]. Social presence in online learning is the degree to which an online learner feels connected with other participants in a learning community. The feeling of social presence helps students overcome the feeling of isolation from each other and encourages them to engage in meaningful online learning activities [1], which is especially important in collaborative learning where group-focused dimensions are emphasized [5].

The features of the communication medium play an important role in establishing the feeling of social presence. When the medium provides opportunities for transmitting information about facial expression, posture and other nonverbal cues, it contributes to the degree of social presence [2]. In addition to the features of the medium, it is the kind of interactions and the sense of community established in the group that matter for achieving engaged communication [2]. Garrison et al. [3] claim that the effect of media is unlikely to be the most salient factor affecting the degree of social presence developed by the participants, as the feeling of social presence is influenced by “the communication context created through familiarity, skills, motivation, organizational commitment, activities, and length of time in using the media [3, p. 94]”.

Asynchronous text-based environments are widely used to deliver online courses. These environments possess a range of advantages for learners who have to collaborate across time and space. However, due to the reliance on written communication, social presence can be problematic to establish [3]. Earlier research has demonstrated that text-based learning environments are not effective in supporting the development of engagement and presence in group collaboration [4]. Therefore, the moderator’s role in building social presence among the participants in such environments is crucial [2, 5]. This study applies the affordance perspective for analyzing how an asynchronous text-based collaborative learning environment affects social presence. The main objective of this paper is to provide a better understanding of the online tutor’s role in promoting social presence in such learning environments, thus helping the learners who have not met face-to-face engage in meaningful learning processes. The paper discusses the perceptions of students taking a distributed online collaborative learning course over one year, and seeks to answer the following questions:

1. How does lack of synchronicity in a text-based learning environment affect the feeling of social presence?
2. How can an online tutor promote the feeling of social presence among the collaborative partners in an asynchronous text-based environment?

The paper is structured as follows. First, related research on social presence is introduced and the concept of online tutoring is discussed. Afterwards, research questions, theoretical framework, context of the study, and method are formulated. Finally, the results are presented, followed by discussion and implications.

2 Related Research

2.1 Social Presence

Garrison et al. [3] recognize three interrelated kinds of presence in distributed learning environments, which are cognitive presence, social presence and teaching presence. Cognitive presence refers to the participants’ ability to construct understanding by means of sustained communication. Social presence is about the participants being able to project their individual characteristics in order to present themselves as “real people”. Finally, teaching presence is about the design of the course, learning activities and

assessment, as well as the facilitation during the course. Teaching presence is aimed at enhancing cognitive and social presence.

Garrison et al. [3] describe social presence in terms of emotional expression, open communication, and group cohesion. Emotional expression refers to the expression of humor and self-disclosure (i.e., sharing of feelings). Open communication is characterized by reciprocal and respectful exchanges, and is realized through mutual awareness (i.e., learners addressing their comments to particular peers or referring directly to specific messages) and recognition of each other's contributions. Finally, to reach group cohesion students need to be able to perceive themselves as part of their group rather than individual contributors.

Sung and Mayer [1] suggest five broad categories of social presence:

1. *Open mind*: Students are able to express personal views freely and perceive the environment as safe.
2. *Social respect*: Students feel acknowledged, and they feel that their contribution is as important as others'.
3. *Social sharing*: Students in a group have shared values.
4. *Intimacy*: Students have a chance to learn more personal information about each other, for example, through sharing of personal experiences.
5. *Social identity*: Students feel acknowledged as individuals with their own personal characteristics.

2.2 Online Tutoring

The online tutor is a facilitator of learning who takes proactive steps in helping students build their knowledge [6], supporting content-specific cognitive activities, social activities, and meta-cognitive activities in learners [7]. Normally, online tutors do not really teach; instead, they guide students through the activities planned by the course teacher [8]. The roles of the tutor are largely categorized in four groups – pedagogical, managerial, social and technical [9].

The pedagogical role of the tutor is aimed at supporting the content-specific cognitive activities. Sometimes students taking part in computer-supported collaborative learning (CSCL) lack confidence in their progress. The online tutor is the one continuously monitoring students' progress and providing feedback to them.

The social role of the tutor, promoting the social processes in the group, can make the whole CSCL experience different for the learners. Computer-mediated communication (CMC) is often characterized as impersonal and task-oriented [10]. The online tutor can help students avoid the feeling of loneliness in an online environment [7] by building social presence and helping students feel more connected with each other [1].

The managerial and technical roles are aimed at supporting the meta-cognitive processes such as planning, coordination and regulation of the learning activities in the group. Students may be unclear about particular task requirements, and they also need the tutor's guidance regarding the use of the tools.

3 Empirical Study

3.1 Affordances

The notion of affordances is used in the paper in order to address the features of the learning environment affecting the feeling of social presence in students. Affordances are not only functional aspects of an object, but also relational. The “functional” aspect implies that affordances are enabling or constraining some activity with an object, while “relational” means that affordances of one and the same object can be different for different actors [11]. The full range of affordances a certain technology possesses may be not immediately perceived by a certain actor [11, 12].

In order to reach the best possible effectiveness, affordances of e-learning technology should be matched with the learning tasks [13]. Technological tools used for CSCL have to provide learners with opportunities to engage in a joint task and communicate effectively, share resources, engage in productive collaboration and co-construction, monitor their learning, and build groups and communities. At the same time, it is important to consider technology together with other social supports [12].

Considering affordances of a particular online collaborative learning environment is beneficial for understanding what kind of interventions undertaken by the online tutor may become critical for promoting the feeling of social presence in students.

3.2 Context

The study was carried out in the context of a CSCL course running throughout the academic year 2015–2016. The course was run by a university in Norway, where both the course teacher and online tutor (the author of the paper) were located.

The main focus of the course was design of online courses. In addition to the participants residing in (but not necessarily originating from) Norway (21 in fall and 20 in spring), ten students from two foreign universities collaborating with the host university (one student residing in and originating from Asia and nine students residing in and originating from an African country) took part.

The course teacher and online tutor met the local students face-to-face before the course start in order to provide an orientation session. Most of these students knew each other before the course started. The African students received guidance from a colleague who had completed the course before; they did not have the opportunity to meet with the course teacher and online tutor. These African students knew each other before the course started. The only student from Asia did not have guidance in relation to the course, except for the instructions provided in the course learning environment (available to all of the participants). The students from the three countries were not familiar with the foreign peers before the course.

In the 2015 fall semester, the students were randomly assigned in six multicultural groups in which they worked throughout the semester. The tasks required individual reading and group discussions. Each discussion had to be summed up and delivered to the archive by the discussion “weaver” (i.e., summarizer). The weaver schedule had to be planned by each group in the beginning of the course. Each group was also required

to agree upon a “group contract”, specifying rules and commitments (a standard template was provided to them). The students were randomly re-assigned in five completely new groups in the spring semester.

In the beginning of the course, the participants were asked to upload an individual presentation (a short text with pictures) to the university learning management system (LMS), which was the main learning platform in the course.

The students had different levels of expertise regarding the use of the LMS and collaborative learning methods. The Asian student and two of the African students were earlier engaged in similar online studies and were therefore familiar with this particular LMS and collaborative learning methods in general. For the rest of the African students it was a novel experience in terms of both. Most of the students in Norway were familiar with the LMS but not with the collaborative learning setup.

3.3 Method

At the end of the fall semester a student survey was administered, using the SurveyXact platform. The survey included different types of questions (21 in total), including closed, open-ended, and Likert scale questions. The questions focused on students’ interactions with the tutor and peers, as well as the general course setup and use of the LMS. In the end of the spring semester, semi-structured interviews with the course participants were carried out. The interviews focused on the issues of social presence, as well as the challenges of managing online group work. The interviews allowed getting a deeper understanding of student reflections. Selected insights are presented in this paper. Table 1 presents demographic data of the study participants. Finally, data from the LMS provided some quantitative indicators of use.

Table 1. Demographic characteristics of the study participants

	Survey respondents (N = 14)	Interview participants (N = 9)
Origin	Norway = 6 Other = 8	Europe (incl. Norway) = 4 Africa = 5
Gender	Female = 8 Male = 6	Female = 6 Male = 3
Age	20–30 = 4 31–40 = 6 More than 40 = 4	N/A

4 Results

4.1 Course LMS and the Feeling of Social Presence

In the beginning of the course the students were asked to arrange a Skype call in their groups (without facilitation); however, not all of the students joined their group discussions. The groups’ further interactions ran asynchronously on the LMS.

The LMS offered standard functionality. The welcome page included the links to the modules of the course, course overview and the assignment structure. It also included a news section and a section where the newest contributions and uploads were displayed. The left side of the page provided access to the working areas, of which the main areas were “Discussion forum” and “Archive”. These were organized according to groups and tasks, where each group had asynchronous discussions and uploaded files in its own folders. In addition, a “virtual café” served as a common forum where students could communicate on topics not directly related to the learning activities. Learning materials could be found in the “Archive”.

Unread postings/file uploads were displayed on the front page and marked by a green exclamatory sign on the left side, helping to easily locate new contributions. In addition, there was a possibility to see who had read particular postings, which helped learners evaluate whether their message had reached other members.

The survey responses demonstrate that most students felt their written text could have been misinterpreted by their peers, and would prefer having synchronous meetings in their groups in addition (see Table 2).

Table 2. Survey questions on interactions with peers and tutor

Closed questions	Survey responses (N = 14)
Have you ever felt that your written text was misinterpreted by a peer?	Yes = 9 No = 2 I don't know = 3
Do you think regular synchronous online meetings in your small group would be useful?	Yes = 10 No = 2 I don't know = 2

A number of open-ended text responses indicated that some students actually switched to alternative communication tools (“S” stands for “survey” and “I” for “interview” in the further text. The survey was carried out anonymously, thus S1 and I1 may or may not be the same student):

- **S4:** [...] the discussion forum in [LMS] is not a good tool, hard to communicate when you want to. My group had to use another application to communicate.
- **S9:** All the folders and sub folders made it difficult to engage more often using mobile devices in discussion forums.

The interviews helped reveal that for some students building informal environments was important for gaining confidence in what they were going to post on the LMS:

- **I4:** When you are limited to only formal conversation channels you are kind of careful, what you are saying, what they will think about you – but after brainstorming out here in the informal group it kind of gives confidence on what you can say.

Six of the interviewees reflected that the asynchronous mode of interaction sometimes led to more scattered contributions and stating individual opinions rather than integration of ideas. Waiting for peers' replies was a challenge:

- **I3:** Someone would just come and throw in, and disappear. And some of the posts would particularly show that this person did not even take time to read through the previous posts before putting it there. It felt more... everybody was interested in just putting the post to clear the task, to show their presence, that "I was there".

4.2 Online Tutor Promoting the Feeling of Social Presence

The online tutor was monitoring group discussions on a daily basis, addressing student inquires, motivating students to contribute, acknowledging individual and group contributions, and reminding of deadlines. Sometimes the tutor asked guiding questions to help students develop their discussion and provided additional learning materials. The tutor also posted comments on students' deliverables (after each task in the first part of the course and after each module in the second part). Being aware of differences in the students' schedules, and in order to minimize their coordination efforts, the online tutor kept emphasizing the students' responsibility for notifying their group about possible absence or delayed feedback.

Based on the framework of five categories of social presence from Sung and Mayer [1], ten Likert scale statements were presented to the students in the survey, for example: "Postings made by me and others in the course room were treated as equally important by the tutor", "The atmosphere in my group was open for me to express my opinions", and "I learned about my peers and tutor through their sharing of personal experiences and emotions". The students had to evaluate the items from 1 (strongly disagree) to 7 (strongly agree). The results are presented in Table 3. Students were also provided with an optional comment box in case they wanted to reflect on the statements they strongly agreed or disagreed with.

Table 3. The feeling of social presence perceived by the students

Category	Number of items	Mean
Open mind	1	6, 3
Social respect	4	6
Social sharing	1	5, 6
Intimacy	2	5, 1
Social identity	3	4, 9

Open Mind. The results demonstrated that students perceived the environment as safe, and could share their thoughts and opinions freely. This is supported by their open text responses:

- **S12:** At no one time did I feel scared of giving in my contribution. There was no harshness in the group and the tutor. Actually, there was encouragement from both the group and the tutor on giving our opinions during the discussions.
- **S14:** I felt that my views were never ridiculed at any time, so it made me free to say whatever I wanted to say.

Social Respect. The students were also generally positive regarding the aspect of social respect, supported by a number of open text responses:

- **S9:** All discussions have been respectful and constructive.
- **S11:** I sincerely enjoyed the discussions because we respected each other and we never had conflicts or misunderstandings. The tutor also respected our views and treated us equally.

At the same time, three students indicated uncertainty, claiming that they do not really know if the tutor acknowledged their contributions, which may indicate a need for more active and explicit tutor support.

Generally positive reflections were provided in the interview discussions, with one student even reflecting that they were not happy to change the group in the second semester. However, two of the interviews revealed additional and somewhat different insights. One of the students was reflecting on how cultural background may influence the discussions and consideration of individual arguments:

- **I2:** From my background, even if somebody's argument is not good enough, you kind of appreciate it [...], which is different from their side – if it's not good – it is not good! [...] But I understood that could be cultural.

Another student reflected that she was unsure about how to react when her argument was not included in the final deliverable:

- **I4:** [...] when someone is weaving and you realize your contribution is not there [...]. Without a tutor coming in, you don't know whether you make sense [...]. When a tutor comes in, it's motivating and it feels you have made sense.

These insights are valuable for understanding the learning situations where tutor involvement may be critical for preventing dysfunctional phenomena in the group.

Social Sharing. Both in the survey responses and interviews the students underlined the importance of the group contract. The contract helped them build a shared understanding of the process and responsibilities in the group.

Three of the interviewees commented that sharing their personal introduction in the beginning of the course felt more of an assigned task rather than learning about their peers, reflecting that they only read a few introductions uploaded by other members.

Intimacy. Student insights suggest that the environment could have been perceived as providing little opportunity to learn about each other:

- **S11:** The sharing on the LMS and my group interactions were strictly on the academic discussions we were meant to handle. There was very little sharing of personal experiences and it was too little for me to learn about my peers or my tutor!

Social Identity. Finally, the student responses suggest that the environment could have been perceived as rather impersonal. While the categories of intimacy and social identity scored lowest, it is important to note that not all of the students actually wanted to engage in more off-task interactions. When asked about that in the survey, three students expressed a clear “no”, emphasizing that they joined the course to learn, not to socialize. Four students were unsure, mainly due to the time constraints. However, seven were claiming that they would like such opportunities, for example, in order to build trust in the group, or create networks for future collaboration.

It was mentioned by two interviewees that they liked to have the virtual café available in the LMS, even though they did not engage in conversations that often:

- **I2:** [...] I think it is a good avenue even to kind of relieve yourself from the steam and stress of the task, and go and talk about other things.

The café was exploited rather actively in the first part of the course (254 postings in total) but stayed relatively inactive in the spring semester (18 postings). The course teacher and online tutor also participated in the virtual café.

4.3 Teaching Presence

Both in the survey and the interview discussions most students reflected that one of the most crucial aspects was the subject matter feedback they got from the tutor. Even though this aspect is not directly related to the main focus of the paper, it is important to bring up in this discussion as teaching presence has an impact on cognitive and social presence [3]. The main challenge for the tutor is to identify how much involvement is needed in case of particular groups. In the survey, students were asked how often they would like the tutor to post in their discussions. Their answers varied greatly:

- **S10:** Not so often, but once in a while; frequent monitoring also tires – we are self-directed.
- **S3:** From time to time, so we know tutor is there somewhere.
- **S13:** As often as it can be possible, because it encourages the learners in knowing that their work is being looked at by the tutor.

Some of the students wrote that the tutor’s guidance is necessary only when the group does not seem to manage themselves, for example if there is an emerging conflict situation, if people are going astray, or if some group members do not participate.

Although the amount of desired tutor involvement is dependent on individual learners, it seems to be important for all of the students to know that their tutor is “there”, following the discussions.

5 Discussion

Table 4 provides an overview of key LMS affordances potentially affecting students’ feeling of social presence in this asynchronous learning environment. It is further discussed how the asynchronous mode of interaction may constrain the development of social presence, and what the online tutor can do to address this issue.

Table 4. Affordances of the LMS affecting the feeling of social presence

Affordance	Features of the LMS	Enables learners to
Communication	Threaded forum discussions New postings are marked New postings are displayed on the front page Emoticons and text editing options Private messaging on the LMS	Communicate asynchronously Organize discussion threads thematically Respond to particular contributions Spot newest postings in the forum and front page Emphasize emotions graphically Communicate with individual members
Resource sharing	Shared repository New uploads are marked New uploads are displayed on the front page	Upload and download resources Spot newest contributions in the archive and front page
Co-construction	Shared discussion forum Collaborative text editor	Sustain joint attention and reflect Build on each other’s contributions Engage in co-writing
Monitoring	“Read by” feature on postings	Monitor whether the message had reached the peers
Individual presentation	Individual contact cards (contact information & photo)	Present oneself and learn about peers

On one hand, the asynchronous mode of communication ensures flexibility [12] for students from different parts of the world to participate. Asynchronous discussions make learning visible and help students reflect [3, 14, 15]. Moreover, in earlier studies students were found to enjoy asynchronous brainstorming as they could share their opinions without being interrupted or judged [14]. Therefore, the possibility to communicate asynchronously may contribute to such facets of social presence as open mind and social respect, as students may express their perspectives, as well as acknowledge and respond to their peers’ contributions in the discussion forum.

At the same time, lack of synchronicity in the environment may create challenges for facilitating open mind and social respect. Due to the temporal disconnectedness, the feeling of social presence in asynchronous communication is often based on participants’ expectations regarding when their peers check the communication channels [16], and the “normal” flow of interactions is violated due to delayed feedback [17]. This may cause mismatches in the communication process, and some of the contributions may be left out. The results of this study demonstrate that the asynchronous mode of

communication sometimes resulted in more scattered contributions rather than integration of ideas. Moreover, students often felt that their text could have been misinterpreted by their peers, and some of them chose to switch to alternative communication channels. The students' responses demonstrated that introducing the online tutor in such a learning environment is beneficial. The learning environment was generally perceived as open and respectful, as students felt encouraged to share their opinions freely. The interviews provided evidence that the tutor's role can be crucial in preventing dysfunctional phenomena and supporting a respectful atmosphere in the group. The tutor has the authority to draw students' attention to individual contributions that were not considered, and in this way promote the feeling of mutual acknowledgement.

Initial personal introductions are crucial for creating common ground and establishing shared values among course participants. Lack of information about the peers' knowledge is critical in CSCL since learning is realized by means of co-construction of knowledge [18]. Students were earlier found to emphasize that group performance could be increased if it was possible to directly explore their peers' competence [19]. The results of this paper suggest that the text-based introductions in the beginning of the course were not particularly effective. At the same time, the group contract helped learners agree on the shared values and responsibilities they were carrying with them throughout the course.

Finally, as getting acquainted with peers is important for building good relationships, it is important to create sociable collaborative learning environments [10] which would facilitate such aspects of social presence as social identity and intimacy. It is important to provide a place for students to engage in off-task interactions when and if they want to. The virtual café was acknowledged in the interviews as a place available for off-task communication, even though not actively exploited in the second semester. The results of the study suggest that the course environment as a whole was perceived as somewhat impersonal, providing little opportunity for students to learn about each other. Unlike asynchronous communication channels, synchronous tools may support social presence and off-task interactions [15].

The importance of subject matter feedback from the online tutor was emphasized by most of the students. Students appreciated the tutor continuously monitoring their progress and bringing them back on track if necessary. However, students had different expectations regarding the frequency of interventions. Finding a good balance between support, learning and fading remains one of the challenges in CSCL research [12]. Tutor interventions that lack precision tend to interfere with ongoing thinking processes and negatively affect the collaborative learning process [20]. A student directly addressing the tutor in an online learning environment may also make other students think their response is not needed [21].

Therefore, complementing asynchronous text-based learning platforms with synchronous sessions facilitated by the online tutor can address several crucial aspects. First, synchronous communication especially in the beginning of the CSCL process will help learners introduce themselves and learn about each other's areas of expertise. This would facilitate building common ground and establishing shared values in the group. Further synchronous "checkpoints" throughout the course could be the place for the tutor to provide instant feedback and ensure the groups and the individual students

are on the right track in their learning progress. Increased levels of teaching presence would have a positive effect on cognitive and social presence. Finally, additional synchronous communication can also promote more social off-task interactions among the learners and the tutor.

6 Implications

In their work, Sung and Mayer [1] suggest specific implications for fostering the feeling of social presence. They argue that the moderator should promote mutual acknowledgement and respect. Learners must know that it is worthwhile to contribute and their time is valued by other participants. The moderator has to be open-minded and learners must know that they can share their views freely. The moderator should be able to share some personal and professional information and facilitate the students to do the same. Careful use of humor and addressing individual students by name are other examples of good practice aimed at facilitation of the personal connection. The results of this study can complement the list with the following implications:

1. *Group contract*: The participants should agree on the group contract before starting the collaborative learning process. This contract will specify responsibilities and expected behavior in the group. Students should be provided with a copy of the contract. Discussing the social contract is important for establishing shared values.
2. *Equality of contributions*: It is important to bring the groups' attention to individual contributions which were not taken up. While some contributions may be skipped by peers without providing a reason explicitly, the author of the contribution may decide to decrease his/her further participation in the discussion. Individual learners must feel their contribution is acknowledged by the rest of the group.
3. *Promoting awareness*: It is important to remind the students that they must notify their peers of possible absence. To avoid extra coordination efforts and anxiety in the group, they should state clearly when their contribution can be expected. This facilitates respectful communication among the group members.
4. *Coordination*: The online tutor may help learners coordinate their activities by reminding of upcoming deadlines. Sometimes it may be necessary to contact absent individual students by email. They may be having difficulties navigating in the environment, or withdrawing from the discussion due to misunderstanding or lack of acknowledgement from the rest of the group.
5. *Off-task communication*: A place within the main learning platform should be provided where learners can communicate on off-task issues if they want to. The online tutor's involvement here would help learners feel connected.

It may be beneficial to complement the asynchronous learning environment with synchronous communication tools in order to increase levels of social (as well as teaching and cognitive) presence. Video channels were also earlier found to increase the degree of social presence perceived by the group members in zero-history groups [22].

6. *Initial video-conference*: A video-conference facilitated by the tutor in the beginning of the course is recommended, for the participants to introduce each other's personal background and discuss their areas of expertise. This will help learners build common ground and establish shared values.
7. *Progress checkpoint meetings*: The tutor should provide instant feedback in regular synchronous group meetings, increasing the level of teaching presence. Moreover, additional synchronous communication in groups is likely to promote more social off-task interactions.

7 Concluding Remarks and Future Research

Social presence distinguishes a collaborative community from simple exchange of information. As Garrison et al. [3, p. 96] note, the tone of the messages in a collaborative community should be “questioning but engaging, expressive but responsive, skeptical but respectful, and challenging but supportive”. The analysis in this paper has demonstrated that the asynchronous mode of interaction in the online learning environment may affect the development of social presence negatively. Namely, asynchronous communication sometimes led to scattered contributions, and some of the contributions remained left out. Most of the students felt their text could have been misinterpreted by other members. Moreover, the opportunities to build common ground and learn more about peers were rather limited. The paper has discussed how the online tutor can contribute to learners' feeling of social presence and mutual respect in such asynchronous text-based learning environments, possibly complementing the environment with synchronous communication channels.

CSCL courses often involve an international audience, as for the course discussed in this paper. People from different cultures consider different behaviors to be critical for common task completion [23], and culturally diverse groups may have different perceptions of CSCL [14]. Interestingly, there is evidence that reduced levels of social presence in CMC environments actually helped the learners reduce anxiety in multicultural groups [24]. More research is needed in this direction as currently little is known regarding the support for multicultural CSCL groups [25].

Moreover, the learning activities of the course described in this study were not supported by collaboration scripts. Better understanding is needed regarding the potential of collaboration scripts in helping CSCL participants reach increased levels of social presence in online learning environments.

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