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ISSUES

Social and Cognitive Affordances of Chat Technologies in Telecollaboration: A Critical Look at the COI Model

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Much has been written about telecollaboration, though there is less research specifically on the precise affordances of computer-mediated communication (CMC) technologies used in telecollaborative projects. There are even fewer studies that investigate the affordances of CMC from the perspective of the community of inquiry (CoI) model, which posits that learning online occurs at the intersection of three types of presence, namely cognitive, social, and teaching. The goal of this paper is to examine data from a three-way intercultural online exchange between intact university classes in Germany, Poland, and the US, specifically analyzing the social and cognitive presences of the participants in two different types of discourse: synchronous video chats and asynchronous forum postings. The findings suggest that the synchronous video chats allow for comparable amounts of cognitive and social presence, while the asynchronous text forums are more conducive to cognitive presence as manifested in critical thinking, confirming that different digital tools have different affordances. However, the CoI model was found to be insufficient for explaining certain types of social presence, leading to adding to the subcategories of CoI coding, particularly as regards social presence in synchronous discourse.

1. Introduction

In the realm of telecollaboration, different terminology has been used, with O'Dowd and Lewis (2016) favoring the term *online intercultural exchange* (OIE) while treating *telecollaboration* and *virtual exchange* as synonyms, which we also do throughout this paper. O'Dowd and Lewis describe OIE as "the engagement of groups of students in online intercultural interaction and collaboration with partner classes from other cultural contexts or geographical locations under the guidance of educators and/or expert facilitators" (p. 3). In the broad range of OIE projects, a variety of goals have been documented, from increasing second language proficiency to improving intercultural communicative competence (Guth & Helm, 2010). To achieve the goals of the wide range of exchanges and projects, different types of computer-mediated communication (CMC) technologies have been employed, depending on the availability of the technology as well as on the purpose of the exchange.

In the 1990s, Web 1.0 tools in OIEs were primarily asynchronous (e.g., email, discussion forums), while starting in the 2000s, Web 2.0 tools allowed for both asynchronous (e.g., blogs, wikis, social networking sites) and synchronous communication in telecollaboration (e.g., text chat, audio chat, video chat). Studies of the affordances of different technologies, i.e., the capabilities and possible uses that can be made of a given technology, as well as the accessibility, ease of use, and suitability for a given purpose, have found, for example, that synchronous audio-conferencing allows for the spontaneous exchange of information while asynchronous blogging is conducive to the development of closer personal relationships (Hauck & Youngs, 2008). However, in other telecollaboration projects, somewhat negative affordances of conferencing tools came to light. For example, audio-only Skype conversations between a native speaker of English and a German student learning English revealed that the interactional burden was placed on the native speaker while the learner exhibited little active participation and very brief replies (Barron & Black, 2015). There are thus both positive and negative affordances of particular technologies when used by different participants for different purposes.

Parallel to the development and use of CMC technologies for language and culture learning, different theoretical frameworks evolved for researching online learning environments in general. One such framework that has become widely used and accepted is Garrison et al.'s (2000) Community of Inquiry (CoI). The CoI framework originally focused on distance learning models in higher education and how learner (and teacher) engagement could be fostered in an online environment, primarily text-based. In a nutshell, "[t]he Community of Inquiry theoretical framework represents a process of creating a deep and meaningful (collaborative-constructivist) learning experience through the development of three interdependent elements – social, cognitive and teaching presence" (https://coi.athabascau.ca/coi-model/, see Figure 1).

After its first decade, during which the framework was applied beyond distance learning to blended learning models, Garrison et al. (2010) looked forward to seeing further research that used the framework as a predictor of the learning process and learning outcomes in a wide range of contexts. Since the framework had been shown to be helpful for distance and blended learning, it could well be useful for examining cross-cultural communication in telecollaboration projects. However, although the model has been widely researched in a variety of learning contexts in the last two decades (2000-2020), until recently little has been written about the particular affordances of different technologies used in telecollaboration from a CoI perspective (see Van der Zwaard & Bannink, 2018).

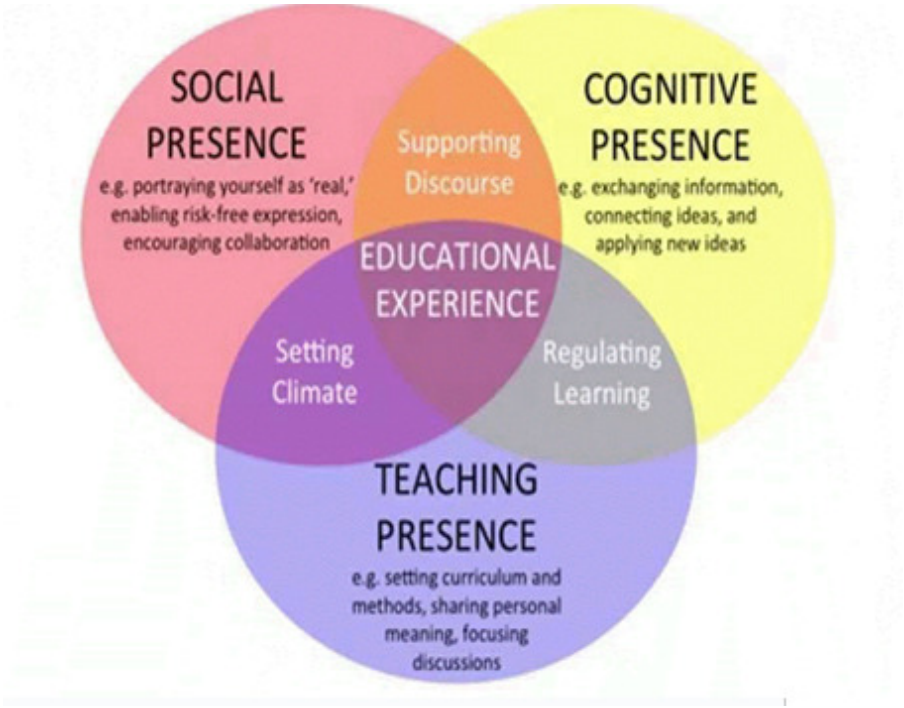

Figure 1. Community of Inquiry model (Garrison et al., 1999)

Our study therefore attempts to bridge the gap between the research on CMC affordances and the CoI framework by closely analyzing data from a three-country intercultural exchange in a university setting. In particular, it compares spoken discourse produced by multilingual university students engaged in synchronous video chats with written discourse in asynchronous forum postings in terms of the types of social and cognitive presences exhibited in their discourse. The goal of this line of inquiry is to uncover more nuanced ways of analyzing CMC discourse in telecollaboration, in the hope of contributing to or expanding the CoI framework, as well as to suggest pedagogical implications of such findings for future virtual intercultural exchanges.

2. Literature review

Literature to date on the affordances of CMC technologies for online intercultural exchanges reveals both positive and negative outcomes when particular technologies are employed, depending on the participants in the telecollaboration and on the tasks that they performed.

Early studies of online exchanges with Web 1.0 tools (e.g., email, forum discussions) found mixed affordances. Some studies discovered that forum discussions allowed learners to freely reflect on cultural differences (Furstenberg et al., 2001) while others revealed that email exchanges between partners result in richer discussions of culture and greater interaction than forum discussions (Chun, 2004).

Telecollaborations that were conducted with Web 2.0 tools (e.g., asynchronous platforms such as blogs and wikis, and synchronous technologies such as text- and video-chatting) also demonstrated both positive and negative affordances of the technologies. Positive affordances of asynchronous tools include: longer, syntactically more complex forum posts, as compared with shorter, less formal text-chat entries (Chun, 2011); more negotiation of meaning in written chat than in video chat, suggesting that written exchange is a less face-threatening digital medium (Van der Zwaard & Bannink, 2018); and allowing participants to develop close relationships with their partners in their blogs (Hauck & Youngs, 2008). With synchronous CMC, positive outcomes include learners being able to exchange information in a spontaneous manner during audio conferencing (Hauck & Youngs, 2008) and demonstrate pragmatic competence in using "an appropriate combination of knowledge, skills, and attitudes in real time in order to interact with interlocutors from a different country or culture" (Chun, 2011, p. 416). On the other hand, negative affordances of audio-only Skype conversations were discovered by Barron and Black (2015), whose data showed that L2 learners conversing with a native speaker exhibited little active participation and many more short replies than long replies, placing the interactional burden on the native speaker.

In terms of frequency of use of CMC technologies in telecollaboration, Akiyama and Cunningham (2018) found that in the 55 projects studied, about 60% included *both* asynchronous (ACMC) and synchronous (SCMC), while the remaining 40% used only SCMC. Among the SCMC types, text chat was used most frequently (42%), followed by video chat (22%) and both text and video chat (22%), indicating that SCMC has become the preferred mode of communication in telecollaboration.

The preceding studies on the affordances of ACMC and SCMC are concerned with second language communication and telecollaboration outcomes. Not many attempts have been made to view the affordances of video chat and text forum tools, especially through the lens of the Community of Inquiry (CoI) model, which is a well-known and broadly researched construct designed to enhance online learning (Garrison, 2011; Rourke et al., 2001).

In the CoI model, the quality of learning is determined by the interplay of three presences: cognitive, social, and teaching. Two of them, the cognitive and the social presences (CP and SP), are important to this paper. Since the teachers of the three classes were not directly involved in the online project work in the telecollaboration reported here, teaching presence per se (TP) is not being considered, and the distributed teaching presence of the students will be discussed in a separate paper. CP is described as "the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry" (Garrison et al.,

2001, pp. 10–11), while SP is "the ability of participants in a community of inquiry to project themselves socially and emotionally, as 'real' people (i.e., their full personality), through the media of communication being used" (Garrison et al., 1999, p. 94), a "'feel good' issue ... [which] sets the environment conditions for higher learning" (Vaughan et al., 2013).

In the extensive body of research to date, CoI presences are studied through the analysis of interactions based on excerpts of discourse coded and annotated for the presence of CP and SP. Garrison and Arbaugh (2007), in reviewing the first seven years of CoI research, called for the following in order for the framework to be developed into a theory of online learning effectiveness: (1) enhanced methodological and analytic rigor; (2) conceptual refinement of the relationships and interactions among the elements; and (3) the need for testing the framework in disciplines other than education. As a follow-up to this call, Stenbom (2018) provides a systematic review of research (103 journal papers in peer-reviewed journals) in which the CoI survey was used to examine online and blended learning experiences in many different contexts. The current study aims to contribute to this body of CoI research.

Specifically, in the fields of second language learning and intercultural exchange, several studies have begun to bridge the gap in applying the CoI framework. A study by Lomicka and Lord (2007) investigated the development of social presence in communities of language teachers at two US universities who used different technological tools to make journal entries (individual text files, email dialogues, online group discussion forums). Their study found that paired and group journalers produced more discourse than individual journalers, and that social presence varied across each type of journaling, suggesting that the technological tools influence how a group co-constructs their social presence. However, their study is not directly concerned with language learners or intercultural exchange.

Chun and Turula (2015) found that interlocutors in an intercultural telecollaboration normally navigate smoothly between the cognitive and social presences in their online postings. Turula (2018) discovered that face-to-face synchronous communication in a hybrid tutorial resulted in a richer social presence while the asynchronous teacher–student online exchanges paved the way for higher levels of cognitive presence and critical thinking.

In sum, previous research has investigated the affordances of CMC technology in virtual exchanges, with varying outcomes. For example, positive outcomes of text-based ACMC include the use of more complex syntax, discourse, and knowledge construction, but also the facilitation of close personal relationships. Synchronous video chat (SCMC), on the other hand, may result in shorter, informal responses or in limited participation by learners when talking with native speakers, which may be considered a negative outcome. The CoI model has been employed to study online

learning in many different disciplines, but it is relatively underrepresented in analyses of virtual intercultural exchanges, particularly with regard to affordances of the technologies, though the body of research is steadily growing.

In the current study, we seek to address the gap in considering the affordances of two CMC modes, synchronous video chat and asynchronous text forums, in a three-way telecollaboration from a CoI perspective. Namely, we investigate how the use of different technologies affects discourse in the intercultural exchange as related to the varying levels of CP and SP displayed by the participants, all of whom are university students and either pre-service or in-service second language teachers. Additionally, we look at the usefulness and adequacy of the CoI framework in evaluating the affordances of different CMC modes in intercultural telecollaboration.

3. Methods

The study places itself in the research thread reported in the literature review section. Its aim was to examine the effects of task-tool affordancing in telecollaboration from the CoI perspective, with the overarching research questions being:

> RQ1: Using the CoI framework, what differences, if any, can be observed in the cognitive and social presences exhibited by telecollaboration participants in synchronous and asynchronous chats?
>
> RQ2: How useful is the CoI framework in evaluating the affordances of different CMC modes in an online intercultural exchange?

3.1. The project

This paper reports on an exchange between three institutions of higher education over a period of eight weeks in the fall of 2018. While all 31 participants were enrolled in classes focusing on the use of technology in Foreign Language Education at their respective universities, they were on different academic levels, ranging from undergraduate (UNI-C) through master's (UNI-B) to PhD (UNI-A). In addition, they were all training to become foreign language teachers or were already serving as foreign language teaching assistants.

In nine international groups of three (UNI-C+UNI-B+UNI-A) to four (UNI-C+UNI-C+UNI-B+UNI-A) members each, the participants of the virtual exchange collaborated on a number of tasks, using a range of communication tools, including Google Docs, Zoom, and Schoology (a learning management system). The project language was English used as a lingua franca.

Table 1. Task sequence of the telecollaboration

Stages	Assignment and instructions	CMC tool	Time
1	Introductory task: Students post self-introductions with photos and vignettes about a problematic classroom situation.	Google Docs	15-19 Oct
2	Task 1: International groups meet informally and get to know each other: sharing jokes and reflecting on the underlying stereotypes	Zoom video chat	19-28 Oct
3	Survey about participants' reactions to 3 critical teaching moments selected from the vignettes	Online survey on Google Forms	29 Oct -2 Nov
4	Task 2: Group forum discussions on survey responses in Stage 3.	Schoology forum	5-16 Nov
5	Pedagogical task: Problem-solving group activity on a critical teaching moment.	tool(s) decided by groups	19-7 Dec

The exchange was based on a task sequence (Table 1) devoted to language teaching. First, the students were asked to write self-introductions and also to include a critical classroom situation that they had personally experienced. Three of these classroom vignettes were later chosen for an online survey, in which the students were asked to describe their reactions to these situations. Following this, the participants were to get to know each other in their small groups through a socializing task in a video chat (Task 1). During the task, the students were asked to share a stereotypical joke about their respective region or regions and to analyze the jokes vis à vis the stereotypes. Subsequently, the students were to fill in a survey of their reactions to three classroom situations from the introductory vignettes. The next step consisted of a forum discussion (Task 2) of the survey data. It was followed by collaborative work on a solution to one of the problematic classroom situations which could work in all the educational cultures represented in the respective groups. For further details on the instructions given to students, see Table 1 in the external appendix.

3.2. Participants

For this study, four of the nine groups, consisting of 14 students (11 women and 3 men), agreed to have their data analyzed. Each of the four groups contained one or two UNI-C undergraduates, one UNI-B graduate, and one UNI-A PhD candidate (Table 2).

3.3. Data collection and analysis

The data consist of discourse samples: transcripts from the synchronous video chats (Task 1) and posts in the asynchronous text forums (Task 2) from the four international groups.

The data were subject to the following multifaceted analyses:

- Using the CoI framework and a list of descriptors of presence categories (Table 3 below), large fragments (ca. 3,500-word excerpts for each group) of the SCMC transcripts, as well as

Table 2. Study participants

Group	Participants	Academic level	Language proficiency
1	UNI-A1	PhD	native speaker
	UNI-B1	graduate	advanced
	UNI-C1	undergraduate	advanced
2	UNI-A2	PhD	advanced
	UNI-B2	graduate	advanced
	UNI-C2.1	undergraduate	advanced
	UNI-C2.2	undergraduate	advanced
3	UNI-A3	PhD	advanced
	UNI-B3	graduate	advanced
	UNI-C3	undergraduate	advanced
4	UNI-A4	PhD	advanced
	UNI-B4	graduate undergraduate	advanced
	UNI-C4.1	undergraduate	advanced
	UNI-C4.2		advanced

full ACMC transcripts (approximately 3,800 words in total), were coded independently by two of the authors as regards cognitive and social presence.

- A fine-grained system of coding was used.[1] Both coders have had experience in this type of coding and have used the CoI model in their university teaching and research on multiple occasions. They followed the system of applied linguists Arnold and Ducate (2006) in dividing the transcripts into so-called speech segments, "the smallest unit of delivery, linked to a single theme, directed at the same interlocutor" (Henri & Rigault, 1996, p. 62), and coding each segment.
- Afterwards, the individual coding differences in annotation were discussed by the two coders and a common label was agreed on in each case, e.g., TRIG, EXP, INT, AFF, INTAC.

4. Results

4.1. SCMC and ACMC – cognitive and social presences

TASK 1 (SCMC VIDEO CHAT)

The data for Task 1 show that the students' social presence (440 tokens) in the video chat, as reflected in the discourse analyzed, is significantly higher than their cognitive presence (254 tokens). There are intergroup differences as regards the proportions of the two presences (Figure 2 and Table 4; see also Table 4a in the external appendix for complete data). While for Group 1 the cognitive and social presences are almost equivalent in the number of tokens received in both tasks (CP 47, SP 55), the scores vary significantly for

1 The coding process may be more or less fine-grained. For example, Garrison et al. (2001) used entire messages/postings by individuals in a CMC discussion as their unit of analysis.

Table 3. CoI presences and their descriptors (adapted from Garrison et al., 2001)

Category	Subcategories
COGNITIVE PRESENCE (CP)	
Triggering (TRIG)	recognising the problem expressing sense of puzzlement asking questions
Exploration (EXP)	numerous, often contradicting ideas personal narratives, descriptions, facts explicit admitting of exploration brainstorming leaps to conclusions (offering unsupported opinions)
Integration (INT)	agreeing synthesising (developing) hypothesis integrating information from various sources explicit characterisation of ideas creating solutions
Resolution (RES)	proposing testing and defending solutions
SOCIAL PRESENCE	
Affective (AFF)	expression of emotions use of humour self-disclosure
Interactive (INTAC)	continuing a thread asking questions quoting from others referencing to others complimenting / expressing appreciation expressing agreement
Cohesive (COH)	using personal names and details using inclusive language phatics, salutations

the other three groups. For Group 2, social presence is more than twice as high as cognitive presence (CP 55, SP 134). For Groups 3 and 4, the scores for social presence are higher (the latter, CP 63, SP 92) or much higher (the former, CP 89, SP 159) than cognitive presence. Interrater reliability ranged from 79% to 83% for the four groups.

As for the individual categories of both presences (Figure 3, below, and Table 4a in the external appendix), exploration (EXP) is the most popular manifestation of cognitive involvement, both overall (132 tokens) and for each group (29, 30, 43, 30 tokens, respectively); in turn, interactive (INTAC: 231) and affective (AFF: 188) verbal behaviors are the most typical of the social contributions, the former tokens outnumbering the latter in all groups but Group 2 (INTAC: 34, 51, 85, 61, respectively; AFF: 15, 75, 69, 29, respectively).

In addition, the groups also vary in how their individual members contributed to the overall scores in cognitive and social presences (Table 4). (For detailed information about the sub-types of SP and CP, see Table 4b in the external appendix).

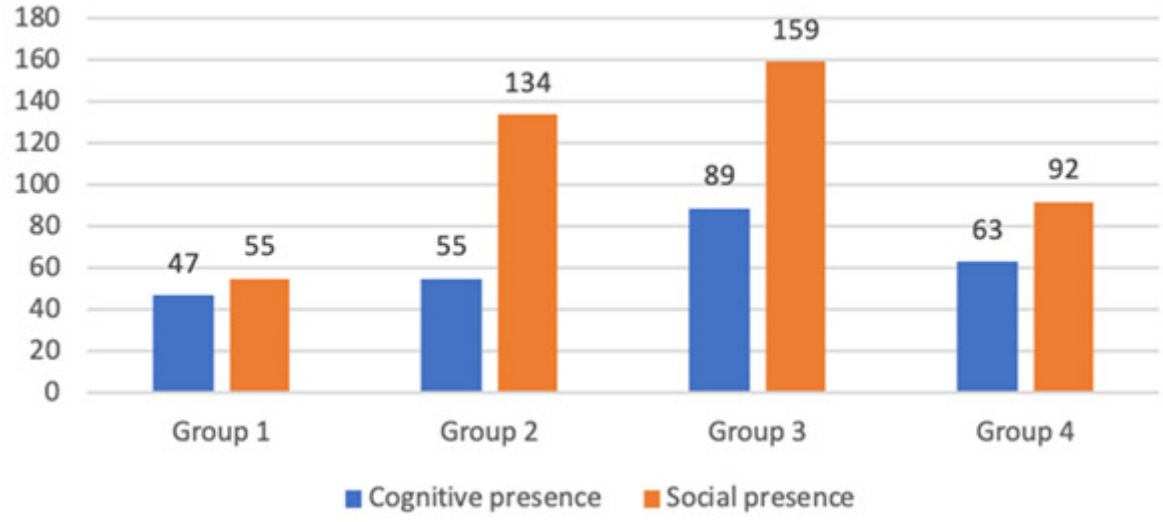

Figure 2. Cognitive and social presences in Task 1 (video chat): Totals per group

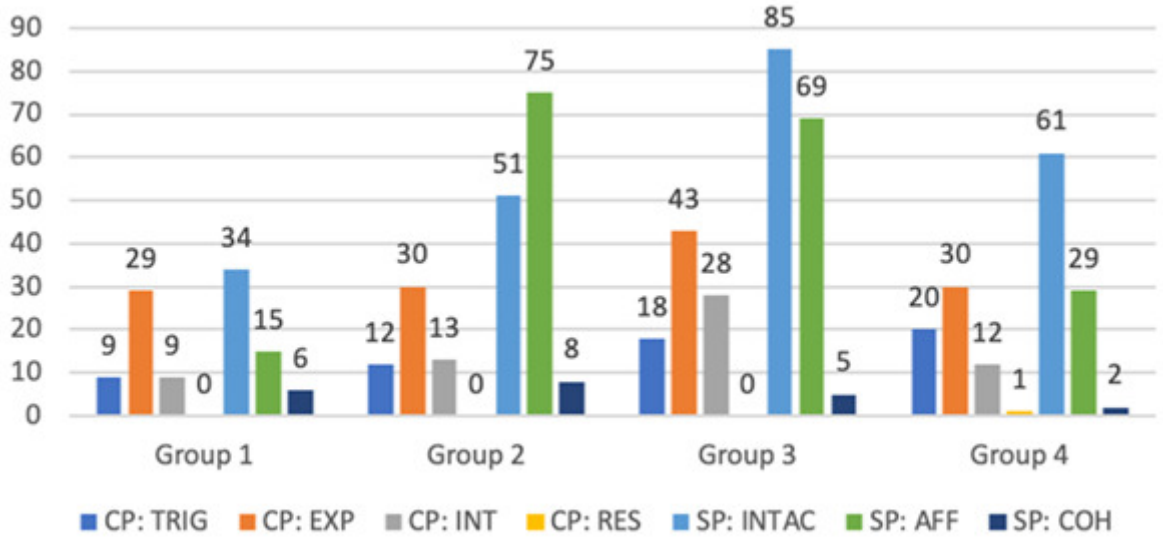

Figure 3. Cognitive and social presences in Task 1 (video chat): Individual categories per group

In Group 1, UNI-A1 contributes more significantly in the area of social presence (CP 10, SP 27), UNI-C1, cognitive presence (CP 21, SP 16), while UNI-B1's participation is rather balanced but lower (CP 16, SP 12). In Group 2, with UNI-C 2.1 almost totally abstaining from participation (CP 3, SP 1), social presence input is two (UNI-C 2.2: CP 27, SP 58) or three (UNI-B2: CP 10, SP 29; UNI-A2: CP 15, SP 46) times higher than the cognitive one. Similar proportions can be observed for Group 3, with more balanced contributions from the UNI-C student (UNI-B3: CP 40, SP 69; UNI-A3: CP25, SP 67; UNI-C3: CP 24, SP 23). For Group 4 the social presence scores are much higher for two group members (UNI-A4: CP 20, SP 29; UNIC4.2: CP 12, SP 29) and rather balanced but lower for the two others (UNI-B4: CP 18, Sp 22; UNI-C4.1: CP 13, SP 12).

Table 4. Cognitive and social presences for Task 1 (video chat): Individual student scores

Group	Student	CP total	SP total	Total
1	UNI-A1	10	27	40
	UNI-C1	21	16	37
	UNI-B1	16	12	28
	Total	47	55	105
2	UNI-B2	10	29	39
	UNI-A2	15	46	68
	UNI-C2.1	3	1	4
	UNI-C2.2	27	58	88
	Total	55	134	199
3	UNI-B3	40	69	114
	UNI-A3	25	67	100
	UNI-C3	24	23	48
	Totals	89	159	262
4	UNI-A4	20	29	51
	UNI-C4	18	22	40
	UNI-C4.1	13	12	26
	UNI-C4.2	12	29	42
	Totals	63	92	159

TASK 2 (FORUM DISCUSSION)

In Task 2 (Figure 4, below, and Table 5a, in the external appendix) the students' cognitive presence (134 tokens) in the forum discussion was higher than their social presence (44 tokens). Similar to Task 1, there are intergroup differences as regards the proportions of the two presences (Table 4, Figure 2). For Task 2, the cognitive and social presences for Group 1 are again (cf. Task 1) almost equivalent in the number of tokens in both tasks (CP 20, SP 17), but the scores vary significantly for the other three groups. For Group 3 the cognitive presence is again (cf. Task 1) twice as high as the social presence (CP 29, SP 14). For Groups 2 and 4 cognitive presence tokens are several times more numerous than those of social presence (Group 2: CP 53, SP 9; Group 4: CP 32, SP 4). Interrater reliability ranged from 84% to 97% for the four groups.

As for individual categories of both presences (Figure 5, below, and Table 5b in the external appendix), integration (INT) is the most popular category of the cognitive presence both overall (67 tokens) as well as for each individual group (11, 24, 13, 19, respectively). Compared to Task 1, there are also a significant number of contributions in the resolution (RES: 18 tokens) category. As regards social presence, interactive (INTAC: 18 tokens) remains the most popular category. There is a notable increase in the number of the coherence (COH) tokens compared to Task 1, which are now as numerous as the affective tokens (13 in both categories).

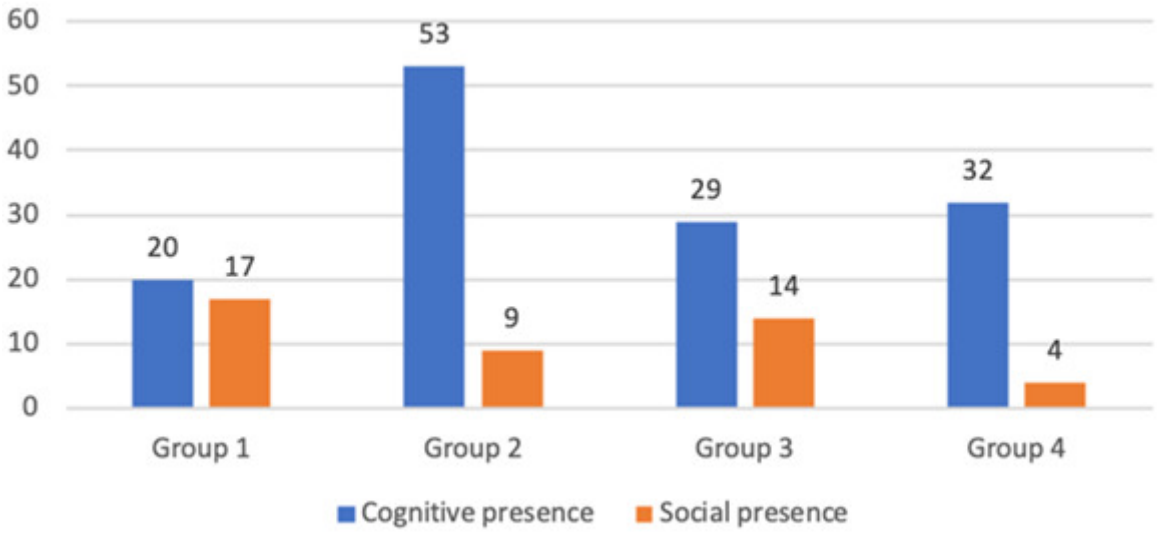

Figure 4. Cognitive and social presences in Task 2 (forum discussion): Totals per group

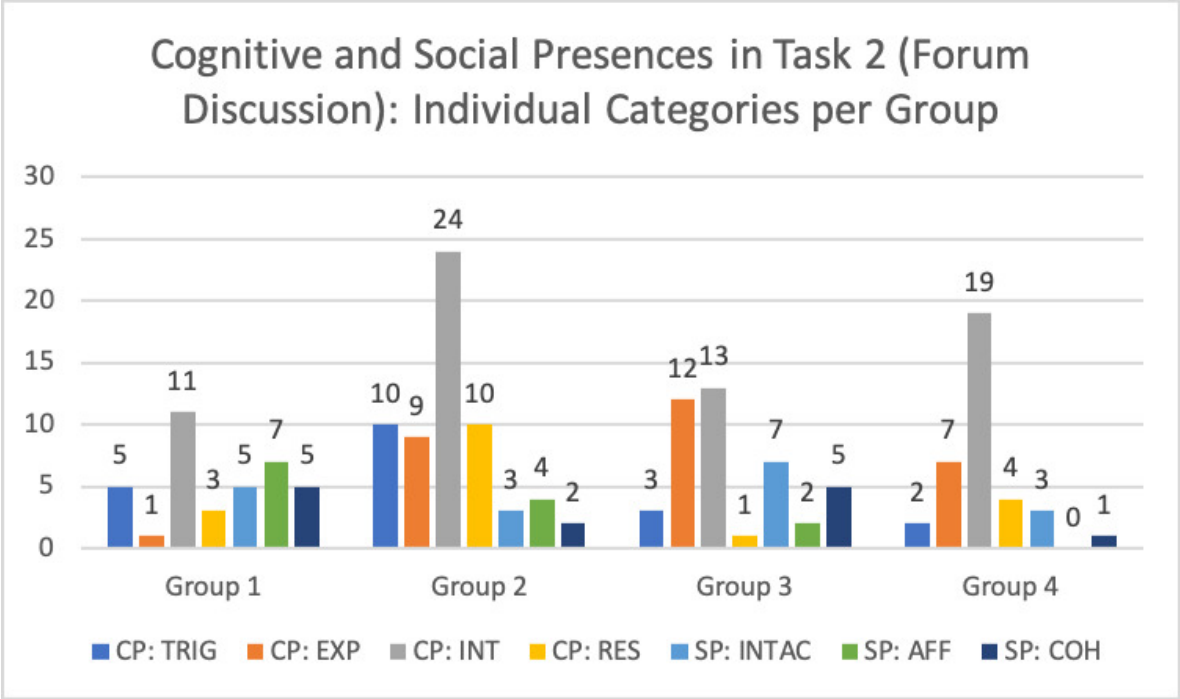

Figure 5. Cognitive and social presences in Task 2 (forum discussion): Individual categories per group

The comparison between the number of tokens for the two tasks shows that the asynchronous exchange resulted in the richer cognitive presence than in the synchronous video chat, especially its higher order categories of integration (INT) and resolution (RES) as compared with the lower level category of exploration (EXP) in the synchronous chat. Social presence, though definitely less numerous in Task 2, is also richer (increase in the percentage of instances in the AFF category) for the forum discussion than for the video chat.

Table 5. Cognitive and social presences for Task 2 (forum discussion): Individual scores

Group	Student	CP total	SP total	Total
1	UNI-A1	13	9	22
	UNI-C1	0	0	0
	UNI-B1	7	8	15
	Totals	20	17	37
2	UNI-B2	13	3	16
	UNI-A2	13	1	14
	UNI-C2.1	19	2	21
	UNI-C2.2	8	3	11
	Totals	53	9	62
3	UNI-B3	11	3	14
	UNI-A3	7	3	10
	UNI-C3	11	8	19
	Totals	29	14	43
4	UNI-A4	16	2	18
	UNI-B4	9	1	10
	UNI-C4.1	0	0	0
	UNI-C4.2	7	1	8
	Totals	32	4	36

Table 5 displays the total CP and SP scores for individual participants in Task 2 (forum discussions), and together with Figure 5 reveals that for this task, the two presences are fairly balanced for Group 1 (UNI-A1: CP 13, SP 9; UNI-C1: CP 0, SP 0; UNI-B1 CP 7, SP 8). Cognitive presence significantly prevails for Groups 2 and 4 (UNI-B2: CP 13, SP 3; UNI-A2: CP 13, SP 1; UNI-C2.1: CP 19, SP 2; UNI-C2.2: CP 8, SP 3; UNI-A4: CP 16, SP 2; UNI-B4: CP 9, SP 1; UNI-C4.1: CP 0, SP 0; UNI-C4.2: CP 7, SP 1). The scores vary for Group 3, from prevailing cognitive presence (UNI-B3: CP 11, SP 3; UNI-A3: CP 7, SP 3) to a more balanced score (UNI-C3: CP 11, SP 8). There are two non-contributors: UNI-C1 and UNI-C4.1. For detailed information about the sub-types of SP and CP, see a complete Table 5b in the external appendix.

4.2 THE USEFULNESS OF THE COI FRAMEWORK

Using the CoI framework, the coding of the data for CP and SP, reported in the previous section, was first done independently by two of the authors. The interrater reliability, calculated after the two researchers initially coded the transcripts of the synchronous video chats and the asynchronous forum (text) chats, was above 0.80 for all samples (see Tables 4 and 5). All the cases in which the two coders disagreed were then discussed and they were able to reach an agreement as to the originally controversial labels. In spite of the general accord regarding the CoI categories, the following observations were noted.

First of all, there were several areas where the framework lacked a category which the coders saw fit for a discourse fragment, especially in the synchronous video chat, whose spoken discourse was frequently spontaneous and occasionally containing unfinished sentences as well as shorter turns (samples 1 and 2 below).

Sample 1. Group 3: SP, INTAC (Interaction: continuing a thread) – **highlighted**

UNI-C3: **aha. So, you are in a master's program, right? PUK3?**

UNI-B3: **Yes, yes, I am.**

UNI-A3: **Aha [nodding] ok.**

UNI-B3: **The first year of my masters.**

UNI-C3: **Wow.**

Sample 2. Group 4: SP, INTAC (Interaction: continuing a thread) – highlighted

UNI-B4: [raises his hand, says with a smile] I got a joke, I can tell, but you know, no offense...[laughs] UNI-C4.1, because you're German German, your parents are German.

UNI-C4.1: **Yeah.**

UNI-B4: And UNI-C4.2, you have [immigrant nationality] roots, right?

UNI-C4.2: **Yeah, exactly.**

UNI-B4: And, a few years ago when there was this huge immigration of [immigrant nationality] people to Germany, this joke came to Poland that, listen [hand up], it's coming.

UNI-A4: **Okay.**

UNI-B4: It's year 2030 and there is speed limits on the highway, and the policeman stops a car ...

In samples 1 and 2, a subcategory of social presence – SP, INTAC (Interaction: continuing a thread) – was used for all the supportive murmurs and short comments made to encourage the speaker to continue or to show one's supportive interest (see UNI-A3 in Sample 1 and UNI-A4 in Sample 2). While it may be argued that these routines are a part of the said CoI subcategory, they also are of a slightly different social weight, nature and function than the other SP, INTAC (Interaction: continuing a thread) turns highlighted in the discourse samples above.

Secondly, within the present CoI framework it is impossible to code negative social presence – be it marginalising others, discontinuing a thread through impoliteness – or any attempts of the discourse participants to remedy uncomfortable SP situations by offering reassurance or face-saving comments (See samples 3–5 below).

Sample 3. Group 1: Discontinuing the thread by self-focusing

UNI-C1: Yeah, I feel a bit tired today.

UNI-B1: I was on a trip for the whole weekend so yeah, that's... Actually it's just ended and I also feel so tired (laughs).

Sample 4. Group 4: Face-threatening behavior; UNI-B4's joke

UNI-B4: It's year 2030 and there is speed limits on the highway, and the policeman stops a car, "Hello, driving license please and documents". And the policeman looks at those documents and he, he calls his friend, "Hey [immigrant name], look what a strange surname, 'Muller'! [3 of them laugh, but UNI-A4 doesn't].

UNI-B4: Do you get it, UNI-A4?

UNI-A4: No, I don't get it, oh my goodness, can you explain that to me? I have no idea what is that.

UNI-B4: ~~T~~here is more [immigrant nationality] than German in Germany now, or it's expected to be.

Sample 5. Group 4: Face-saving attempts by discourse participants: reactions to UNI-B4's joke

UNI-C4.2: Well we are everywhere, in every part of Germany for example, you always will see people from [immigrant country] or with [immigrant nationality] roots. I promise. So, yeah, everywhere [gestures with his hand], all around the world. In Germany, that's true of course.

[UNI-A4's turn, off-topic]

UNI-C4.1: [starts to speak simultaneously with UNI-A4] I was just about to say that there are a lot of people in Berlin who have a migration background, and that's kind of a lot for only Berlin, but, I don't know about the [immigrant nationality] people, to be honest.

UNI-A4: But that's kind of funny, yeah I don't know.

UNI-C4.2: Well they have in Berlin, for example, streets that's like in [city in immigrant country], for example, and it's cool, you know.

In Sample 3 UNI-B1 fails to show sympathy; instead, she appropriates the thread (being tired). In Sample 4 UNI-B4 tells a joke that is a potential threat to UNI-C4.1's positive face – his ethnic identity. This happens after his identity has been explicitly acknowledged (See Sample 2). What happens next is an attempt by UNI-C4.2 and UNI-C4.1 to save the threatened face by acknowledging the contributions of immigrants to the German culture and a general appreciation of cultural diversity (Sample 5).

5. Discussion

Based on the data gathered in the study, the following answers to the two research questions can be offered.

RQ1: Using a CoI framework, what differences, if any, can be observed in the cognitive and social presences exhibited by telecollaboration participants in synchronous and asynchronous chats?

The data show that students in all four groups exhibited more instances of SP than CP in the video chat, and, conversely, more CP than SP in the forum discussion. In other words, the video chat was used for exchanging personally relevant information and small talk, and thus for creating a positive group atmosphere. In the forum discussion, in contrast, there seemed to be more focus on constructing meaning through more complex contributions. What is important is the richness of the contributions both quantitatively – shown in the number of tokens – and qualitatively – with the cognitive categories of integration (INT) and resolution (RES) observed in ACMC and, to a lesser extent, in SCMC, where the cognitive presence was mostly represented by exploration (EXP). The complexity can also be seen in the much scarcer social presence: ACMC was richer in coherence (COH), which was almost absent in the SCMC discourse.

This is very much in line with previous research showing that asynchronous online communication is more likely to be linked to an exhibition of cognitive presence because it is conducive to more complex output in terms of language and content (e.g., Chun, 2011; Turula, 2018). On the other hand, an analysis of the synchronous interaction in our study showed that it supported participants exhibiting social presences, thus confirming the research of Lomicka and Lord (2007) who found that some groups of language teachers successfully constructed social presence with SCMC tools. What our data additionally show is a link between the area of social presence and the use of asynchronous tools in terms of facilitating social cohesiveness, as suggested by Hauck and Youngs' (2008) research. Scarce as the social presence was in the forum chat, it was definitely richer in the coherence (COH) category of SP, as shown in the data.

In the case of our study, the results can be partly explained by the task instructions, and, as such, related to task-tool affordancing, which is of particular interest to the present paper. Task 1 was more about creating a

team spirit and Task 2 about engaging in a content-based discussion, so the CP/SP results show that the groups were more or less following the guidelines of telecollaboration. However, even though the primary function of Task 1 was social, the exchange was embedded in university classes, and, as such, there were implicit expectations as regards the cognitive depth of the analysis, which is assessed in terms of CP in the CoI model for both Task 1 and Task 2. In the case of Task 1 this was, in particular, expressed in the task requirements: a reflection on stereotypes through the culture-specific joke they were supposed to tell. Contrary to expectations that, perhaps, comparable levels of CP and SP would be exhibited, the social aspect of the interaction seems to have prevailed over the cognitive one in the said task.

There may be several reasons why this occurred, the task-tool matching discussed above being only one of the causes. The first explanation for the less-than-expected CP in Task 1 may have been the fast-paced interactions, typical of the synchronous medium. In such interactions, less proficient users of English may have been at a disadvantage in terms of exhibiting CP, as previously shown by Barron and Black (2015), and which our ongoing data analysis in this area has yet to corroborate. One additional factor to consider is the power dynamics within the small groups. In those groups, three classes at the three different institutions consisted of students at different academic levels. It is possible that some of the undergraduates may have felt less confident in exhibiting either CP or SP, especially in the synchronous interaction, which, as noted by van der Zwaard and Bannink (2018), may have been more face-threatening. Finally, the task requiring one to reflect on stereotypes might have been cognitively too demanding for a synchronous chat and could have had better results as an asynchronous chat. Given this, there might have been task-tool misaffordancing in the case of Task 1.

However, what needs to be pointed out, based on our data, is that the relationship between the mode of interaction (synchronous, asynchronous) and the type of presence prevailing in this interaction (social, cognitive) may be not as straightforward as suggested in literature to-date. While our study confirms the interdependence of the synchronous mode with social presence and the asynchronous mode with cognitive presence, there is much to be said for intergroup as well as individual learner differences. Language proficiency or susceptibility to in-group power dynamics, as indicated above, may be such differences (and are addressed in a different paper). The analysis of group-specific CP/SP proportions (Figures 2 and 4), as well as of the individual scores of various group members (Tables 4 and 5), points to other potential factors, such as personality traits or task-orientedness. While most of the participants of the study showed a definite inclination for more social presence in the synchronous chat and cognitive presence in the asynchronous exchange, this was far from uniform. There were groups, like Group 1, where the presences were balanced in both tasks. And there were interlocutors, such as UNI-C1, whose cognitive contribution in the synchronous chat

prevailed over the social input, and UNI-B1, who was more inclined towards social presence (albeit minimally) in the forum exchange. Other participants provided balanced contributions: UNI-C4.1 in the synchronous chat; UNI-B1 and UNI-C3 in both interaction modes. Finally, there were group members who abstained, or abdicated, from interaction: UNI-C2.1 in the video chat; UNI-C1 and UNI-C4.1 in the forum discussion. Reasons why some members of the community of inquiry deviated from the general SCMC/SP–ACMC/CP pattern seem worth investigating.

RQ2: How useful is the CoI framework in evaluating the affordances of different CMC modes in an online intercultural exchange?

Based on the fact that both coders were generally in agreement as to how CP and SP were reflected in the discourse data, it can be stated that the CoI framework is generally a very useful tool for the evaluation of task-tool affordancing. This pertains not only to the asynchronous mode, for which the framework was originally designed, but also, to a considerable extent, to the synchronous mode of audio and video exchanges. At the same time, our study shows that there are areas where the CoI framework seems to be in need of extension and modification.

First of all, as shown in discourse samples 1 and 2, the SP INTAC category could use additional subcategories: a new label borrowed from discourse analysis, namely *backchanneling* (Heinz, 2002; Tolins & Fox Tree, 2014; Yngve et al., 1970). This modification seems particularly needed in the synchronous voice mode of interaction. This is probably why the present CoI model, originally designed for asynchronous, text-based exchanges, does not include this category of social presence.

Secondly, as can be seen in discourse samples 3–5, good social presence depends as much on the positive aspects of open communication, group cohesion and affective expression (provided for by the present CoI framework) as it does on the absence of the negative aspects of interaction (not accounted for). This is to suggest that the social presence framework could be enriched with descriptors pertaining to self- as opposed to other-centredness, inspired by Goffman's (1967) distinction between deference and demeanor or face-threatening / face-saving, borrowed from the politeness theory (Brown & Levinson, 1978/1987). The CoI framework could also benefit from the descriptors normally used for the assessment of communicative ability in language learning. In such a case, positive social presence could be manifested by what May (2010) called *collaborative participation* exhibiting "high equality and high mutuality" and not marginalizing (Galaczi, 2004).

The amendments to the subcategories of social presence, proposed above, are included in Table 6 below. The bold-faced, italicized items are the suggested amendments to the model of Garrison et al. (2001) and Rourke et al. (2001).

Table 6. Social presence: Suggested new subcategories

Category	Subcategories
SOCIAL PRESENCE	
Affective	attempts at saving other's face
Interactive	backchanneling
Cohesive	involving others in conversation
Negative social presence	AFF: face-threatening / impoliteness INT: discontinuing a thread / excessive self-focus COH: avoiding marginalising others

6. Conclusions

The results of our study show that SCMC in the form of video chat allows for interlocutors in a three-way telecollaboration to exhibit more social presence (SP) than cognitive presence (CP), as compared to ACMC in the case of written forum discussions, where participants exhibited greater CP than SP. This is not surprising in that it corroborates earlier research on the affordances of SCMC for spontaneous exchange of information (Hauck & Youngs, 2008) and on the affordances of ACMC for more negotiation of meaning (Van der Zwaard & Bannink, 2018) and more syntactically complex posts (Chun, 2011). However, SCMC is becoming the preferred mode of communication in online intercultural exchanges (Akiyama & Cunningham, 2018), and one of the pedagogical implications of this study is that it may be prudent for future telecollaborative projects to also include tasks using ACMC in order to facilitate greater CP and critical thinking. This refers in particular to tasks in which the cognitive involvement of the participants may be compromised by factors such as task complexity and, potentially, the language level of the participants and power relations in a given community of inquiry.

In response to the call by Garrison and Arbaugh (2007) to move the CoI framework forward in different contexts and disciplines, our study contributes data from a virtual intercultural exchange, an area underrepresented in the CoI research. Additionally, it suggests that the current CoI model does not have sufficient descriptors for the range of SCMC discourse produced by participants. Since the CoI framework was originally applied to written asynchronous discussions, the availability and widespread use of synchronous audio and video chat modes necessitates an expansion of the subcategories. Our discourse data contain instances of social presence types, such as backchanneling, attempts at face-saving and involving others in the conversation; and so-called negative social presence types, including face-threatening, impolite postings, excessive self-focus, and marginalising interlocutors. By coding our video chat data and uncovering different types of positive and negative social presence, we can make

recommendations for instructors of future virtual exchanges to monitor their participants' output and discuss with them any infelicitous interactions they might have with their partners.

The limitations of the study include a relatively small sample size, a relatively short period of the exchange (eight weeks), the fact that the students in the three intact classes at three different international universities were all at different levels in both educational status and English language proficiency, and that the telecollaboration was the primary focus in only one of the classes. However, the hope is that the analyses of cognitive presence and social presence in authentic discourse produced by telecollaborators in different countries can inform future planning for similar endeavors.

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Ethical statement

There are no conflicts of interest in this paper. The participation in the study was voluntary and informed consent was provided. The anonymity of the participants was sustained through the study.

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