Online Community Building in Distance Education: The Case of Social Presence in the Blackboard Discussion Board versus Multimodal VoiceThread Interaction

Julian Chen and Tatiana Bogachenko[*]

Curtin University, Australia // julian.chen@curtin.edu.au // tetiana.bogachenko@curtin.edu.au
[*]Corresponding author

ABSTRACT: Establishment of online communities in distance education has been linked to improved engagement, retention, and learning outcomes. This study investigates how online community building was fostered in the text-based Discussion Board (DB) and multimodal VoiceThread (VT) in one of the postgraduate units offered by Open Universities Australia. Specifically, it delves into how social presence – encompassing affective, cohesive, and interactive indicators in the Community of Inquiry (CoI) – was facilitated on both platforms. Findings show that VT multimodal postings triggered more instances of social presence than DB postings across all three indicators. VT communication also bolstered a continuous and inclusive discourse by bringing participants closer by addressing members' names and mentioning posts made by others. It is concluded that multimodality afforded by VT can be more advantageous for online collaboration and engagement. Suggestions for course design to establish stronger social presence and for evaluation of multimodal platforms are also offered.

Keywords: Distance education, Social presence, Online communities, VoiceThread, Multimodality

1. Introduction

Distance education, such as that provided by Open Universities Australia (OUA), plays an integral role in the tertiary sector. It offers a sustainable option that enables adult students to continue their studies remotely, which bears relevance to the global pandemic that has severely disrupted in-class schooling. Without distance education, students would have discontinued their studies. In our School of Education, academics teaching OUA units have endeavoured to encourage students to become more involved in the Blackboard Discussion Board (DB). The linear, text-based method of posting and commenting, however, seems to lack the dynamic and multimodal feel of social networking (e.g., Facebook or Instagram). Barren discussion forums, manifested in lacklustre and sporadic interactions, are not uncommon in OUA units. Although a sense of community is not a prerequisite for collaborative online learning (Lowenthal & Snelson, 2017), it has been found to foster students' online engagement and participation, resulting in better learning outcomes (e.g., Campbell & Mislevy, 2013; Lambert & Fisher, 2013; Liu et al., 2009; Sadera et al., 2009).

These pedagogical concerns motivated us to experiment with VoiceThread (VT), an asynchronous multimodal platform, in one of our OUA units. VT offers multimodality that affords users to choose their favourable mode(s) of posting for communication such as audio, video, image, and PDF besides the standard text-based posts. We compared the quality and quantity of students' online discussions on VT and DB in order to ascertain whether multimodality can mitigate the impact of virtual distance (Watts, 2016). In this article, we report on how both platforms were utilised to facilitate *social presence* within the framework of Community of Inquiry (CoI; see Garrison et al., 1999). Specifically, we quantified Social Presence Density (SPD) in student postings to better capture the instances of social presence – "the ability of participants in the [CoI] to project their personal characteristics into the community, thereby presenting themselves to the other participants as 'real people' " (Garrison et al., 1999, p. 89). These findings render useful implications for research and teaching in distance education.

2. Literature review

2.1. Student retention and online community building

Studies on student participation in online courses show high attrition rates due to both student-related and institution-related factors (Boston et al., 2012; Burns, 2013; Campbell & Mislevy, 2013). Moore and Greenland (2017) found that OUA student dropouts resulted from personal factors such as anxiety, health, and family issues, as well as work overloads from job commitments. That said, the institution-related factors are associated with cultural, technological, and course content and design aspects such as difficulty with adjusting to a fully online learning environment (Rovai & Downey, 2010). Evidently, one of the most common issues in distance education is the sense of isolation to which it can lead (Burns, 2013; Khurana, 2016; Rovai & Downey, 2010; Willging & Johnson, 2009). For example, students in Burn's (2013) study conducted in a coaching program reported the feeling of loneliness and detachment in online learning. Willging and Johnson (2009) surveyed those online student dropouts and revealed that virtual isolation, resulting from a lack of interaction with peers and instructors, led to poor student retention.

Indeed, interaction is viewed as instrumental in the enhancement of online learning (Krista, 2011). It can make learning more personalised and meaningful, stimulate understanding through engagement and collaborative enquiry, and foster peer support and social networking (Anderson et al., 2005). Interaction in distance education can also be conceptualised as building "an online community"— defined as "a group of participants in a distance-based environment with a shared purpose and the relationship among them including their sense of belonging, trust, and interaction" (Sadera et al., 2009, p. 2). This mirrors the Vygotskian view of learning as a social process that promotes situated learning through co-construction of knowledge and scaffolding (Anderson et al., 2005). As such, online community building facilitates the development of critical thinking and communication skills (Liu et al., 2009). It also sustains engagement, boosts motivation, and creates a connection with online community members, thus leading to better learning outcomes and an overall satisfaction with the online course (Watts, 2016). Higher levels of engagement further increase the sense of belonging and help students remain engaged throughout the course (Campbell & Mislevy, 2013). Therefore, it is crucial to investigate how technological advancements could facilitate such development of online communities in distance education. To achieve this goal, we ground our study in the CoI framework with a focus on one of its key elements, *social presence*, as it allows us to identify the nuanced indicators of social presence in online communication (Lowenthal & Dunlap, 2020).

2.2. Community of Inquiry (CoI) as a theoretical framework

The seminal CoI framework proposed by Garrison et al. (1999) guides the development and evaluation of online courses, operationalised within three key elements: *social presence*, *cognitive presence*, and *teaching presence*. Social presence comprises affective aspects and personalisation of online learning, while cognitive presence entails the ability of online learners to participate in meaning-making through communication. Teaching presence represents the design and facilitation of an online course. Taking Dewey's view of education as the process of discovery, the framework conceptualises learning as a social process rather than basic knowledge transmission (Lipman, 2003). It also assists in shortening the "transactional distance" that is typically experienced by online learners, thus alleviating potential misunderstandings that may be exacerbated by psychological and communication gaps in online learning (Moore, 1993 as cited in Marmon, 2018; see also Watts, 2016). Supporting critical thinking and co-construction of knowledge in turn leads to effective learning (Lipman, 2003). These three CoI elements were found to correlate with student learning outcomes and retention rates, thereby making it a viable framework for online course design and evaluation (Meyer, 2013).

Since its inception, the CoI has been widely adopted and adapted by course developers and researchers (see, for example, Borup et al., 2012; Hughes et al., 2007; Khurana, 2016; Wu, 2015), and a call for more empirical studies on its application across online contexts has also been proposed in order to refine the framework (Lowenthal & Dunlap, 2020). Hence, our study aims to examine the development of online communities via multimodal online discussion tools while providing further evidence for the dynamics of social presence in this investigated phenomenon. To better situate this study in the current body of research, the construct of social presence is further discussed below.

2.2.1. Social presence

Despite inconclusive in the literature, definitions of social presence in distance learning have revolved around Short's et al. (1976) original notion that indicates the extent to which telecommunication can foster interaction among participants (as cited in Lowenthal & Snelson, 2017). Swan (2017) highlights that the definition of social presence has been further crystalised in recent CoI scholarship as: "the ability of participants to identify with a group, communicate openly in a trusting environment, and personal and affective relationships progressively by way of projecting their individual personalities" (Garrison, 2016, as cited in Swan, 2017, pp. 4-5). In line with the original CoI framework, this updated notion caters for engagement and motivation, feelings of immediacy or closeness, and awareness of other participants in the community (Rourke et al., 1999).

For distance learning, social presence is particularly vital as it infuses the human elements of face-to-face communication (e.g., body language) into online interaction, thus fostering a sense of belonging (Marmon, 2018). The nature of social presence (i.e., mutual participation, support through shared experiences, negotiation of meaning) is also conducive to cognitive presence realised in deeper learning (Lipman, 2003). Given its vibrancy, social presence has been tested out against different models to further verify this construct, such as Social Presence Model (Whiteside, 2007, 2015) and Social Connectedness Design framework (van Tryon & Bishop, 2009, as cited in Dikkers et al., 2017), and its suitability for data analysis. For instance, Gunawardena's et al. (2001) survey and focus group interviews with postgraduate students in the USA and Mexico revealed social presence to be one of the factors that either helped or hindered the development of online groups.

In our study, the CoI provides a viable framework to identify and evaluate the elements of social presence with their manifestations. As suggested by Garrison et al. (1999), three key categories encompass these elements: *emotional expression* (affective aspect), *open communication* (interactive aspect), and *group cohesion*. The first category incorporates word choices, emoticons, and symbols used to express emotions, humour, and self-disclosure. Things that fall into this category are commonly used for sharing real-life experiences, attitudes, and interests, paving the way for building a sense of belonging and trust, while reducing the feeling of isolation. The second category includes showing awareness of online activities and interacting with other participants via responses to posted messages, agreeing, complimenting, or expressing appreciation for discussion contributions. Finally, group cohesion is realised in mutual commitments to community-building through two-way personalised dialogues rather than one-directional communication. This includes using salutations and phatic expressions, addressing posting contributors by name, and using inclusive pronouns to refer to the group as a unity.

Hughes et al. (2007) adapted Rourke's (1999) CoI framework to examine social presence in text-based postings by three interprofessional groups of students at a university. Lowenthal and Dunlap (2020) demonstrated how modification of Rourke's (1999) framework could translate into the comparison of social presence in group discussions. Similarly, Swan and Shih (2005) used Rourke's framework to calculate the *social presence density* of text-based online discussion platforms. While CoI was initially geared towards text-based communication in the late 20th century (Garrison et al., 1999), the uptake of multimedia in the digital era has allowed for multimodal communication. Hence, it is pertinent to compare different modes of instruction regarding their capacities to foster social presence (Lambert & Fisher, 2013).

King (2008) was among the first to compare social presence in text-based and voice-based asynchronous communication. Following Rourke et al. (1999), she calculated Social Presence Density (SPD) as the number of social presence indicators divided by the number of words in messages. In her study, text-based postings triggered higher affective and communicative elements of social presence, whereas voice-based ones contained slightly more elements of cohesive interaction. She also found that when given a choice, students preferred to use text for posting. Wu (2015) compared SPD in both text and voice messages used by Chinese university students. He found higher SPD in voice communication regarding affective and interactive components, but text communication showed higher cohesion. While this finding seems to contradict those of King (2008), voice communication was arranged synchronously in this case, and the addition of some spoken elements, such as laughter or intonation, was also coded. Khurana (2016) took another approach to assessing social presence elements triggered by digital platforms in course modules, namely, text-based forums, VoiceThread, Voki, and Vocaroo. Different from how SPD was computed previously, Khurana (2016) calculated SPD by dividing the number of social presence instances by the number of posts (not words). All three elements of social presence showed higher density in the multimedia discussions compared to the text-based forums.

Besides different course designs and approaches to identifying SPD in prior studies, the multimodal aspect of online discussions has been less explored in finding interpretations, as has been the impact on results of policies of obligatory postings for unit completion. For example, voice postings also include suprasegmental ways of expressing emotions such as pitch and intonation. In King's (2008) study, however, no adjustment was made to

code different aspects of modality such as nonverbal features. Wu (2015) also acknowledged that many instances of suprasegmental expressions might have been omitted or not specified in his coding scheme given the cumbersome nature of this task (cf. Rourke et al., 2001). Finally, students in Khurana's (2016) study were expected to use a different mode (e.g., Voki) to make at least one post per module, although this "requirement" imposed on them also compromised the uninhibited nature of students' posting behaviour.

These observed issues highlight the primacy of coding subtle social presence elements that are easily eschewed or overlooked. Our study intends to address the aforementioned shortcomings and present a clearer picture of social presence that is mirrored in affective, interactive, and cohesive elements of VT and DB communications.

2.3. Discussion Board vs. VoiceThread

The Blackboard Discussion Board (DB, henceforth) is a widely utilised online discussion space for asynchronous communication (Kay, 2006). It provides a structured forum for students to read and comment on discussion topics, responding to each other's postings and archiving posts in a linear manner. Although DB posts are mainly text-based, students can also attach a file, an image, or include a link in their post. DB allows students to post and process the content materials more deeply at their own pace before posting (e.g., Hrastinski, 2008). However, this asynchronous mode also poses challenges to online students. For example, it only generates delayed responses as opposed to its synchronous counterparts that allow for real-time communication (Kay, 2006). The linear interface requiring users to collapse longer threads and posts in order to view and comment is also time-consuming and cumbersome (Kay, 2006). Another downside of DB is that students can simply respond by recycling what has already been addressed in their peers' posts without adding their own perspectives to the discussion (Kirby & Hulan, 2016), especially when deliberately avoiding disagreements with peers (deNoyelles et al., 2014).

In response to these limitations, alternative online discussion platforms have been implemented in online learning. VoiceThread (VT, henceforth) is an example of such a platform that is seeing increasing use in higher education (e.g., Chan & Pallapu, 2012; Delmas, 2017; Donnelly at el., 2016; Fox, 2017; Hsu et al., 2014; Khurana, 2016). Different from DB in interface, VT collates multiple postings in the same space that are accentuated by multimodal commenting (text, audio, video, image, and PDF) without inundating users with linear text-based threads. VT's multimodality can enhance understanding in online communication (Delmas, 2017; Fox, 2017) because it allows users to "communicate emotion, personality, and other non-verbal cues conducive to better understanding and interpretation of meanings" (Ching & Hsu, 2013, p. 308), thus stimulating online interaction and participation (Delmas, 2017; Donnelly et al., 2016; Sato et al., 2017). For example, students in Fox's (2017) study found it helpful to see and/or hear the instructor and peers on VT owing to multimodal postings that make content processing more concrete and comprehensible. Similarly, Japanese language learners in Sato's et al. (2017) research were able to use paralinguistic cues, demonstrated by the Japanese instructor in video tutorials posted on VT, to help them deepen learning by imitating her expressions in intercultural communication.

Multimodality also lends itself to favourable conditions for online collaboration. For example, students in Ching and Hsu's (2013) study considered audio-commenting on VT more time-efficient in facilitating feedback exchange than text-typing. Hsieh (2012) found that VT enhanced Taiwanese university students' development of critical thinking and English presentation skills while promoting collaboration. Additionally, the multimodal posting options afforded by VT personalise communication (Delmas, 2017; Fox, 2017) and bridge the virtual distance between students and their lecturers (Donnelly et al., 2016). Hence, multimodal features can reinvigorate text-based conversation that tends to appear formal and one-dimensional, as is usually the case in DB. The ability to hear/see the instructor in audios/videos, the immediacy of support from the teacher, and the multimodal interactions with peers can help develop a personal connection and combat isolation (see Chen et al., 2020; Khurana, 2016; Sato et al., 2017).

Despite the positive claims made about VT in prior studies, challenges were also reported. For instance, nursing students in Fox's (2017) study initially felt nervous about recording themselves due to their accents and lack of confidence. However, their anxiety dissipated gradually and preferences for voice commenting over text commenting increased. Understanding how social presence is developed and supported by multimodal tools can better inform stakeholders such as institutions, course designers, teachers, and students of optimal solutions to address these challenges. Herein lies the purpose of our study that intends to address the main research question:

Can the use of VoiceThread enhance OUA students' online learning experience and engagement as manifested in the instances and density of social presence when compared to the Discussion Board?

# 3. Methodology

3.1. Setting and participants

This study was part of a larger project investigating the effectiveness of VT for asynchronous multimodal discussions versus DB discussions. One of the postgraduate OUA units offered by an Australian public university was chosen to trial VT for unit discussions. As the unit content covers new ways of utilising emerging technologies for distance education, it met our selection criterion. The unit was delivered in OUA Study Period 3 (SP3), 2018, for a duration of 11 weeks.

126 adult students were enrolled in the Master of Teaching Course via OUA and taking this unit in fulfillment of the Course. Since this unit has two tutorial groups in DB and VT, students were administratively allocated to one of the two discussion spaces through Blackboard. Despite the equal random assignment initially attempted, some students were late for enrolment in this unit, thus making it challenging to allocate equal numbers to both groups. As commonly observed in distance education, some students also withdrew from the unit at different times of SP3. Nevertheless, out of 75 students allocated to DB, 55 (73%) remained in the unit by the end of SP3. 51 students were assigned to VT, and 41 (80%) of them remained enrolled. Of the students who completed the unit, 24 (25%) were males, and 72 (75%) were females.

3.2. Data collection

Ethical clearance was sought and approved before the OUA unit commenced. Enrolled students were informed about the purpose of the study via Blackboard email announcement, which stated that participation in this project was entirely voluntary and no coercion or penalty would apply for early withdrawal. Students' real names were replaced with pseudonyms in the posting examples provided below.

Both VT and DB discussion spaces included separate sections for student introductions (week one) and questions about assignments, but only the 10 content sections (weeks two to eleven) were used for data analysis. In contrast with previous research, we kept topics and tasks the same for both text-based (DB) and multimodal (VT) platforms in the two piloted student groups. Each topic section contained a prompt posted by the instructor, such as a question, article, or video for the students to respond to, or instructions to create their own resources. On DB, the discussion prompt was linearly specified in the section topic, whereas instructions in the VT interface were included in the teacher's initial post within each section. Figure 1 illustrates the two different layouts.

Figure 1. DB and VT Layout
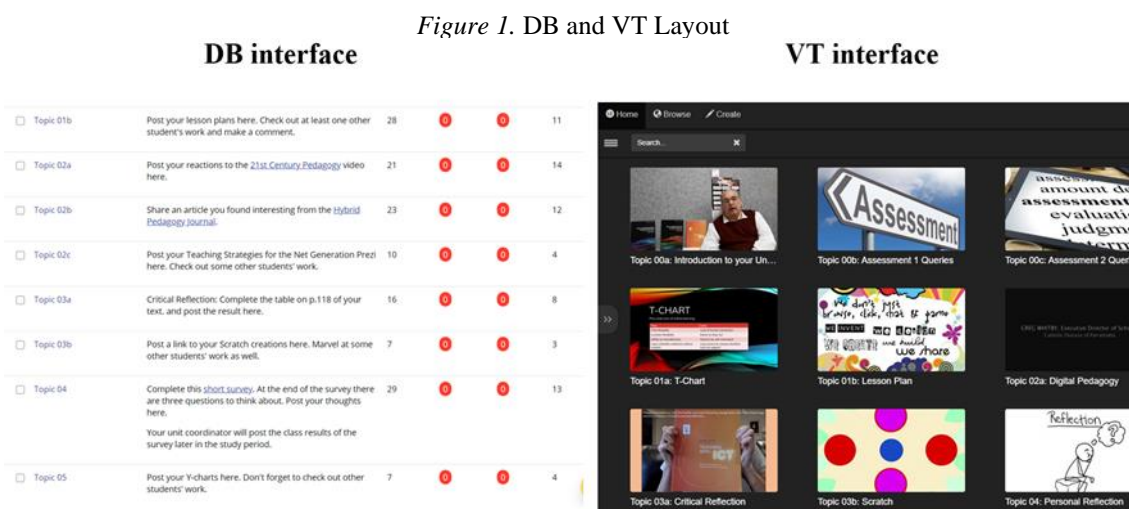
Students responded by creating a new thread or continuing the one initiated by the teacher or their peers. Participation was also managed differently: postings were not obligatory (though encouraged), nor were students marked for their online participation. This enabled us to ascertain how students and their teacher made personal

choices of using different modes of interaction, and how this influenced the patterns of communication on both platforms.

3.3. Data analysis

3.3.1. Coding

Student postings were extracted from both platforms and coded following the scheme developed by Rourke et al. (1999), while adjustments for multimodal platforms from Wu (2015) and Khurana (2016) were also considered. Hence, our coding scheme included three categories of social presence: *affective, interactive,* and *cohesive* (see detail in the Literature Review section) and their indicators as discussed above (see Table 1 for examples). Following Wu (2015), each indicator was given an abbreviation code to identify and tally the total number of instances throughout the dataset. To address non-verbal communications in audio postings, we adopted Khurana's (2016) coding scheme to capture vocal and non-verbal ways of expressing emotions through stress, intonation, and "extra sounds" (p. 64), such as giggling.

Table 1. Social presence categories (based on Wu's (2015) and Khurana's (2016) adaptation of Rourke's et al. (1999) codes, extended)

Categories	Indicators and codes	Examples
Affective	Expression of emotions (SP-AE)	• *Conventional expression of emotions:* I really enjoyed; (which worries me); it was so rewarding; I may be going mad....; oh my goodness; This video made me feel so so so so sad • *Unconventional expression of emotions:* :D ; … ; !!! ; FOR FREE!; haha; LOTS; If it hits the candle, it bursts! • *Non-verbal expression of emotions:* sigh, giggle, excessive gestures, and facial expressions
	Use of humour (SP-AU)	• I'm a bit late to the party here; Sorry for those who had to read this long post. I'm more of a traditionalist and still happy to type. Haha; To get my "total teacher geek" on,…
	Self-disclosure (SP-AS)	• For work I taught myself how to use R, a statistical and graphing software. • I've gone to numerous concerts small and large and I've seen the sound guys actually […] running the system off an iPad
Interactive	Continuing a thread (SP-IC)	• RE:
	Quoting from others' messages (SP-IQ)	• Not found
	Referring explicitly to others' messages (SP-IR)	• I really liked the comments you mentioned about parents and responsibility.
	Asking questions (SP-IA)	• Are you able to see it?
	Complimenting, expressing appreciation (SP-ICE)	• Great idea!; Thank you for your feedback.
	Expressing agreement (SP-IE)	• I agree with both of you; I agree with the other comments that
Cohesive	Vocatives (SP-CV)	• Mentioning names (e.g., as John said)
	Addresses or refers to the group using inclusive pronouns (SP-CA)	• It seems as though we all have quite similar experiences with our previous education in regards to exposure to technology.
	Phatic expressions, salutations (SP-CP)	• Hi all; Howdy; Afternoon; Hope this makes sense; Cheers

Borup et al. (2012) found that students appreciated "seeing" their lecturer when studying online as a means of simulating a face-to-face class and that facial expressions, posture, and gestures add to the sense of social

presence in distance learning. The students who authored video posts were articulate with their body language. Therefore, we carefully identified and coded the salient non-verbal cues used to display emotions in video postings, especially when gestures and facial expressions were shown more strongly than usual (e.g., eye-rolling combined with hand gestures) or were accompanied by intonational change. Table 1 presents our coding scheme, highlighted using colour-coding and illustrated by corresponding examples.

3.3.2. Unit of analysis and SPD

Coding was conducted by analysing posting content. While content analysis can utilise different units of categorisation, such as words, sentences, paragraphs, themes, or messages, Rourke et al. (2001) recommend using a single post as a unit of analysis for online communication. This method streamlines the coding procedure and avoids ambiguity since it becomes clearer to track where the post starts and ends. As Khurana (2016) asserts, focusing on a post as a unit of analysis is also convenient for multimedia messages. Indeed, multimodal communications on VT would make it hard to compare the length of posts. For example, some students tended to elaborate more in audio posting than in text posting. Speaking also involves different language structures and patterns (e.g., shorter and less complex) compared to written texts.

In contrast to a single sentence or paragraph, a post provides a context to which the codes can be assigned. For instance, Khurana (2016) explains how inclusive pronouns (we, us, our) are coded when they refer to the student group itself and left out when they refer to other groups or people in general. This guidance was helpful as we located similar examples in our data (e.g., "It actually reminded me of what *we* [SP-CA] read in the first chapter of the readings this week," referring to the group; "*We* would then have a quick review on what we learnt during the lesson," referring to this student as a teacher and his class). Other subtle discursive features were also noted and carefully coded. For example, "thank you" can be used to show appreciation of another person's post or just as a polite closure (i.e., phatic expression), and indirect questions were raised without question marks. Some indicators may be culturally specific, such as the use of humour.

Finally, SPD was calculated in order to compare the quantity and quality of the two discussion platforms (Khurana, 2016; Rourke et al., 2001). The use of a single post as a unit of analysis means that the SPD was calculated in relation to the number of posts rather than the number of words. To illustrate, an SPD of 3 means that on average, there are three instances of social presence in a post in a given selection (a thread, topic, or the whole discussion space). Figure 2 shows how several instances of the same type of social presence category can be identified within the same post. In other words, the total number of instances within the platform (as well as within each category) is then divided by the total number of posts by students (e.g., 352 instances in DB ÷ 139 posts in DB = 2.53 SPD for DB). Table 2 in the Findings section presents all the numbers and results for this study.

Figure 2. Example of post coding (colour added to indicate the categories, beginning, and ending of the coded text)

3.3.3. Intercoder reliability

To ensure the reliability of the results, the process of analysis involved multiple stages and coders. In the first stage, a combined 10 per cent of the VT and DB posts were individually coded by the research assistant (RA) and one of the project investigators, and their coding results were compared and discussed. Intercoder reliability was calculated based on the percentage of agreement (De Wever et al., 2006). Initially, a low level of coder agreement was reached at 0.62. After cross-examination and discussion on the discrepancies, an adjusted level of agreement was reached at 0.71, which is deemed as reliable due to the high level of subjectivity (Rourke et al., 2001). The RA recoded all the posts taking into account the discussed inconsistencies before another iteration of intercoder reliability was run with one of the authors, whereby it increased to 0.99. Four months later, the RA did

a final round of coding to ensure consistency in which instances were checked with the project lead when any doubts arose.

4. Findings

The results of the SPD calculations are presented in Table 2 and discussed in relation to social presence and online community-building. Key patterns, omissions, and additional observations are outlined and exemplified.

Table 2. Social Presence Density (SPD) for DB and VT respectively

Categories	Indicators and codes	DB[1]	VT[2]
Affective	• Expression of emotions (SP-AE)	53 (0.38)	229 (0.98)
	• Use of humor (SP-AU)	3 (0.02)	13 (0.05)
	• Self-disclosure (SP-AS)	76 (0.54)	121 (0.52)
	Total instances in Affective category	132	363
	SPD for Affective category[*]	0.94	1.56
Interactive	• Continuing a thread (SP-IC)	46 (0.33)	207 (0.89)
	• Quoting from others' messages (SP-IQ)	0	0
	• Referring explicitly to others' messages (SP-IR)	2 (0.01)	71 (0.30)
	• Asking questions (SP-IA)	16 (0.11)	21 (0.09)
	• Complimenting, expressing appreciation (SP-ICE)	33 (0.23)	159 (0.68)
	• Expressing agreement (SP-IE)	17 (0.12)	43 (0.18)
	Total instances in Interactive category	114	501
	SPD for Interactive category	0.82	2.15
Cohesive	• Vocatives (SP-CV)	26 (0.18)	210 (0.90)
	• Addresses or refers to the group using inclusive pronouns (SP-CA)	7 (0.05)	8 (0.03)
	• Phatics, salutations (SP-CP)	73 (0.52)	163 (0.70)
	Total instances in Cohesive category	106	381
	SPD for Cohesive category	0.76	1.64
Total of SP instances		352	1245
# of posts by students in all topics		139	232
Overall SPD		2.53	5.36

Note. [1]Number of instances followed by SPD in brackets. [2]Number of instances followed by SPD in brackets.

Overall, SPD is more than twice as high in VT postings as on DB (5.36 vs. 2.53), and consistently higher on VT across all the three categories of social presence. If we focus on the Affective and Cohesive categories, both show higher density on VT and are almost twice as high as on DB (1.56 vs. 0.94; 1.64 vs. 0.76). The density discrepancy in the Interactive category is even more prominent in comparison (2.15 vs. 0.82). This consistent finding suggests that, given the same content and tasks, the multimodality afforded by VT means that the platform serves as a more viable venue for the development of social presence and online community.

A closer look at the Interactive category revealed that the VT forum hosted longer and more "continuous" discussions. Given the differences in the interface and structure of communication, it is not surprising that VT had fewer but longer threads (2.7 vs 8.3 posts per thread on DB and VT, respectively; see Chen et al., 2020). Within these longer threads, interactive social presence was facilitated on numerous occasions where students "explicitly referred to peer messages" – with an SPD indicator of 0.01 and 0.30 for DB and VT, respectively. Students also continued threads without referring directly to the content of their messages (e.g., complimenting others and expressing appreciation), reflecting a density that was three times higher on VT than DB. Expression of agreement, another way to engage and keep a conversation going, also exhibited a slightly higher density on VT than DB (0.18 vs. 0.12).

Interestingly, within the same category, the "questioning" indicator revealed a different pattern. Slightly more questioning posts were found on DB than VT, albeit insignificant in density (0.11 and 0.09). On both platforms, students posted questions asking for help with technology or resources, requesting feedback, and making attempts to clarify ideas of peers. This may indicate that questioning is seen as an integral part of interaction in distance education regardless of the medium of communication.

Within the Cohesive category, VT students were more inclined to address each other by name (0.90 vs. 0.18 on DB). This may also be attributed to the fact that VT involved longer threads with multiple participants within the

same thread. Hence, there was a need to specify to whom the message (response, question, comment) referred. Some also mentioned their own names in the posts (e.g., "Hi everyone, John here") – which was not discussed in prior studies but can be seen as contributing to the Cohesive element. Regarding the use of inclusive pronouns, DB students were slightly more likely to deploy them than their VT counterparts (0.05 vs. 0.03), indicating that communication on DB was geared more towards the group than individuals. One plausible explanation is that more students participated on DB than VT throughout SP3 (36/55=65% on DB vs. 21/41=51% on VT), and the VT group developed other forms of whole-group referencing in addition to inclusive pronouns. Other pronouns or nouns that indirectly refer to the group can also foster a sense of belonging (e.g., "fellow students," "all," "everyone").

Of the three indicators in the Affective category, only expression of emotions had a density that was almost three times higher on VT than DB (0.98 and 0.38, respectively). This is not surprising given that multimodal postings render more channels for expressing emotions through intonation and body language. That said, students in both groups used humour sparingly, resulting in similarly low-density indicators. The density of self-disclosure was also roughly at the same level. Similar to the employment of questions, this may indicate that students at postgraduate level tend to use examples and personal experiences to support their opinions (e.g., "When I compare my schooling exposure to the exposure children have now its is completely different." Note that No correction was made in grammatical errors/typos in students' original postings unless comprehension was hindered.). Both groups also shared their struggles with certain unit material or technological demands (e.g., "Im naturally not very tech savvy so this course is challenging me and teaching me alot :)")

A few additional features of these discussion spaces have been noted during data analysis. For example, it is worth mentioning that shorter posts were found to contain more instances of SP than longer ones on both platforms. This may be due to the fact that longer posts were primarily associated with the unit content material and responding to weekly tasks, whereas shorter ones functioned as expressing gratitude, emotions, questions or agreement. This is demonstrated in the following example:

DB: "This looks great Gregory! [SP-ICE; SP-CV; SP-AE] Is primary connections a text? [SP-IA]"
VT: "Hi Max [SP-CP; SP-CV], it could possibly be me - teething issues [SP-AU] haha [SP-AE]. I tried jpg and png. Then just tried to upload as word document... [SP-AS; SP-AE]"

Another interesting finding stems from the change in SPD trajectory throughout the unit— rather than a steady increase in SPD as the unit progressed, the density fell more in certain topic sections than in others, with a few spikes in density throughout the unit (see Appendix for the distribution of social presence instances across topics). This may suggest that the type of tasks, questions, or prompts may impact the effectiveness of online community-building. The highest SPDs were recorded across the same topics on both platforms: *2a Digital Pedagogy* (exchanging feedback on the video), *6a Cyber Safety* (reflecting on a video related to cyber safety), and *8b sharing thoughts about MOOCs and online communities*. These tasks encouraged students not only to respond to multimodal prompts with critical views but also to reflect on personal feelings and experiences, thus fostering social presence. Conversely, the two topics ending with the lowest SPD instructed students to only post links to external resources (e.g., "Post a link to your curated resources on cybersafety here. Check out other students' lists."). This suggests that task type and phrasing may influence the density of social presence, which leads to different levels of student task engagement.

In Topic 10 (the final topic), only VT students provided feedback on the unit since DB communication had sharply declined and almost no student posts were being made by week 10. Surprisingly, this final VT discussion triggered the highest level of SPD across all topics on both platforms. It included posts such as "Thanks for what has been a really enjoyable, and eye-opening unit" or "Thank you for your comments as well and … everybody else's that have posted." As VT was the only platform to feature posts in this topic, it is impossible to compare. However, the high level of social presence evidenced by the positive and appreciative nature of these posts implies the overall satisfaction, enjoyment, and positive learning experiences among OUA students in an online community hosted by VT.

Besides the calculated instances and observed patterns found in SPD, it is also instructive to discuss aspects that were absent from the posts. For instance, some posts (mostly on DB) displayed no phatic expressions and salutations at all (83/139 [0.59] on DB compared to 81/232 [0.34] on VT). It was also noted that some posts in both VT and DB discussions contained no text content. That is, some DB posts contained a link only with no explanation provided, whereas some VT posts included a visual only. However, there were no VT posts which exclusively contained a link (if so, all links were introduced or explained). Where an image or another form of media was posted, a follow-up post explaining the previous post would also be provided. VT also enables a

multimedia attachment (e.g., a chart or a picture) to be immediately displayed within the post without taking further steps by clicking to download and opening the file as in the DB interface.

Finally, we discovered certain aspects of social interaction in online community-building outside the scope of the existing social presence codes. For instance, students were keen on inviting peers or the instructor to respond to their initial posting or to offer suggestions. Such examples were particularly evident on VT, often featuring a concluding remark such as "Looking forward to your responses," "have a look and let me know what you think," or "I'd like to hear your thoughts and I look forward to seeing everyone else's T-Pack Y Chart as well." While these are coded as phatic expressions (SP-CP), they can also serve the additional social cohesive-interactive function of inviting others to further engage in the discussion, showing awareness of others' presence, acknowledging their (dis)agreement, and stimulating critical thinking. This may be considered as another indicator for inclusion in the task of refining the existing social presence framework.

5. Discussion and implications

Overall, findings in our study support claims made by prior research in that while both discussion platforms aim to support social presence in online community-building, VT's multimodality is more advantageous for online collaboration and engagement than text-based DB (Ching & Hsu, 2013; Delmas, 2017; Fox, 2017). This is evidenced by the increased interaction and personalisation in VT discussions as the unit progressed. Interestingly, the interactional aspect of social presence was not just more pronounced on VT but was situated in different patterns of communication. This was mainly due to the higher number of cohesive VT posts contributing to longer threads — students not only posted their individual responses to the task prompts but engaged further by using the space as a sounding board for their own ideas and providing input on the ideas of their peers via comments. The richer and deeper social presence promoted by multimodal discussion platforms such as VT can in turn facilitate a stronger online community. Multimodality can also enable personalisation in online discussion and community-building. Not only did VT provide multiple options for posting (thus accommodating individual differences and preferences), but the seamless unit design allowed students to flexibly choose any medium of communication without feeling obliged to pick one over another (cf. Khurana, 2016; King, 2008; Wu, 2015). As evidenced by our study, more tight-knit interpersonal connections were formed when multimedia options were provided, particularly through expressing emotions, addressing peer names, and referring to each other's messages. This also corroborates previous findings in that being able to use audio messages to hear each other's voices facilitates social presence as it develops a higher rapport and trust among the participants (Gunawardena et al., 2001; Khurana, 2016) and helps avoid misunderstanding (Aragon, 2003). Furthermore, students mentioning their own names in the posts also allowed for a greater degree of personalisation in posts which simulated 'real' conversation with peers or instructors.

Both platforms, however, seemed to have provided similar opportunities for self-disclosure (referring to one's personal experiences). Students in both groups equally shared their successes and struggles with the unit-related activities and content, as well as disclosing examples of challenges from their lives outside the unit. This may indicate that students were able to capitalise on real-life examples to support and strengthen their arguments. While making connections to their real-life experiences and teaching practices, it also made their responses more genuinely engaging. Above all, "putting yourself out there" in a public virtual space was no longer considered intimidating in an established online community.

Instances of asking questions were also equally found on both platforms, suggesting that students felt comfortable seeking help or feedback from other group members. Though not directly referring to the content of posts, requesting help and offering solutions helped continue the conversation. Within the existing CoI framework, this is an indicator of teaching presence (see Garrison et al., 1999). It is worth noting that the instructor was not the only one who provided answers as peer support was also found to be conducive to social presence, group interaction, and cohesion. Future research may seek to delve deeper into the effects of different online discussion platforms on the types of questioning, patterns of responses, and follow-up responses.

While overall SPD on VT remained higher than that of DB throughout the unit, SPD was also contingent upon the task type on both discussion platforms. Examination of social presence indicators across topic sections revealed that personalised discussion prompts spawned more student responses regardless of the medium. These tasks invited students to provide self-reflection, thoughts and feelings about an issue raised in the instructor's prompt. Though these prompts were mainly aimed at eliciting students' understanding of the tasks, they also provided avenues for students to develop solidarity by sharing genuine feelings about an issue uncovered or expressing empathy for others' challenging real-life experiences, including cyberbullying or struggles with

technological issues. This finding further supports Lowenthal and Dunlap's (2020) assertion that the nature of a task has an impact on social presence. In particular, they found that SPD was higher when online discussions had a clear focus, such as specific aspects of the assignments, and called for more research on task impact across instructional contexts.

Indeed, this salient finding yields pedagogical implications for course design. While incorporating collaborative learning activities to enhance social presence in online courses (Aragon, 2003) may not always be feasible, it shows that tasks designed to encourage learners to reflect on their own experiences can organically lead to heightened social presence. Consequently, a collegial online environment with high levels of social presence is "intrinsically valuable and educationally profitable" (Rourke et al., 1999, p. 60) as it creates a safe space for online students to openly share personal opinions and offer moral support.

Our findings also help refine the coding scheme originally developed by Rourke et al. (1999). For instance, Hughes et al. (2007) suggested distinguishing between explicit and implicit expression of emotions, re-categorising related indicators, and interpreting multiple meanings for words such as "Sorry." In our case, we also discovered different ways participants referred to a group that were not included in the original framework (such as "fellow students"). These instances flag up the inherent ambiguities of the original CoI framework, which in turn necessitates a concrete scheme of how coding can be done and what issues may arise in the process. Finally, while the CoI itself does not include practical steps to design online courses or improve social presence, case studies can be useful to test out this framework in that they lead to concrete implementation plans and evidence-based implications for distance education (Lowethal & Dunlap, 2020).

6. Limitations and conclusion

Social presence is a key element of the CoI framework that incorporates interactive, cohesive, and affective aspects of online communication during a course of study. The patterns identified in our research support the merit of the CoI framework, highlighting how particular indicators in social presence are manifested on different discussion platforms.

Course designers and online instructors may find the following implications germane to their settings: (1) longer and more continuous interaction patterns promoted by multimodal discussions foster social presence; (2) referencing each other's messages/names enhances a sense of belonging and group identity, thus contributing to the development of social presence; and (3) infusing "humanistic and empathetic" approaches in task design encourages more genuine sharing of feelings and real-life experiences – an integral part of online community-building. Above all, the refinement of the social presence coding scheme developed in our study could serve as a useful guide for future research into multimodal communication in distance education.

Despite its positive findings, this study also has some limitations. First, both groups were not equal in size despite our initial attempts to rectify this issue. As previously indicated, some students were late in enrolment, whereas some withdrew from the unit at different times of SP3, thus making an equal number unfeasible. Constraints posed by participant attrition are beyond researchers' control, however. Second, while higher SPD levels were found to be associated with certain task types, we did not track individual students' employment of social presence indicators. Individual differences and their impact on online community building could be another research area worth exploring. Other limitations are that only one OUA unit in a single Study Period was targeted and only student-student relationships and student posts were coded. Lecturer-student relationships and student interaction with the unit content (i.e., teaching presence and cognitive presence of the CoI framework) are also closely connected to social presence and deserve equal attention when discussion forums are compared. Since students used both platforms to seek help or feedback, it would also be helpful to investigate the question-response patterns in relation to the level of social presence and type of discussion space. These suggestions provide valuable insights and directions for further research.

Acknowledgement

References

Anderson, T., Annand, D., & Wark, N. (2005). The Search for learning community in learner paced distance education: Or, 'Having your cake and eating it, too!' *Australasian Journal of Educational Technology, 21*(2), 222-241. https://doi.org/10.14742/ajet.1336

Aragon, S. (2003). Creating social presence in online environments. *New Directions for Adult and Continuing Education, 100*, 57–68. https://doi.org/10.1002/ace.119

Borup, J., West, R. E., & Graham, C. R. (2012). Improving online social presence through asynchronous video. *Internet and Higher Education, 15*, 195–203. https://doi.org/10.1016/j.iheduc.2011.11.001

Boston, W., Ice, P., & Burgess, M. (2012). Assessing student retention in online learning environments: A Longitudinal study. *Online Journal of Distance Learning Administration, 15*(2), 1-8. https://www.westga.edu/~distance/ojdla/summer152/boston_ice_burgess152.html

Burns, M. (2013). Staying or leaving? Designing for persistence in an online educator training programme in Indonesia. *Open Learning: The Journal of Open, Distance and eLearning, 28*(2), 141-152. https://doi.org/10.1080/02680513.2013.851023

Campbell, C. M., & Mislevy, J. L. (2013). Student perceptions matter: Early signs of undergraduate student retention/attrition. *Journal of College Student Retention, 14*(4), 467-493. https://doi.org/10.2190/CS.14.4.c

Chan, M., & Pallapu, P. (2012). An Exploratory study on the use of VoiceThread in a Business Policy course. *MERLOT Journal of Online Learning and Teaching, 8*(3), 223-237. https://jolt.merlot.org/vol8no3/chan_0912.pdf

Chen, J., Bogachenko, T., Sims, C., & Cooper, M. (2020). The use of VoiceThread as a multimodal digital platform to foster online students' task engagement, communication and online community building. In S. Dovchein (Ed.), *Digital communication, linguistic diversity and education* (pp. 175-201). Peter Lang. https://doi.org/10.3726/b15710

Ching, Y.-H., & Hsu, Y.-C. (2013). Collaborative learning using VoiceThread in an online graduate course. *Knowledge Management and E-Learning, 5*(3), 298–314. https://doi.org/10.34105/j.kmel.2013.05.021

De Wever, B., Schellens, T., Valcke, M., & Van Keer, H. (2006). Content analysis schemes to analyze transcripts of online asynchronous discussion groups: A Review. *Computers and Education, 46*(1), 6-28. https://doi.org/10.1016/j.compedu.2005.04.005

Delmas, P. M. (2017). Using VoiceThread to create community in online learning. *TechTrends, 61*, 595–602. https://doi.org/10.1007/s11528-017-0195-z

deNoyelles, A., Zydney, J. M., & Chen, B. (2014). Strategies for creating a Community of Inquiry through online asynchronous discussions. *MERLOT Journal of Online Learning and Teaching, 10*(1), 153-165. https://jolt.merlot.org/vol10no1/denoyelles_0314.pdf

Dikkers, A. G., Whiteside, A. L., & Tap, B. (2017). Understanding connections among definitions, theory, measurements, and practice. In A. L. Whiteside, A. G. Dikkers, & K. Swan (Eds.), *Social presence in online learning: Multiple perspectives on practice and research* (pp. 11-25). Stylus Publishing.

Donnelly, M. K., Kverno, K. S., Belcher, A. E., Ledebur, L. R., & Gerson, L. D. (2016). Applications of VoiceThread© technology in graduate nursing education. *Journal of Nursing Education, 55*(11), 655-658. https://doi.org/10.3928/01484834-20161011-09

Fox, O. H. (2017). Using VoiceThread to promote collaborative learning in on-line clinical nurse leader courses. *Journal of Professional Nursing, 33*(1), 20–26. https://doi.org/10.1016/j.profnurs.2016.08.009

Garrison, D. R., Anderson, T., & Archer, W. (1999). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education, 2*(2-3), 87-105. https://doi.org/10.1016/S1096-7516(00)00016-6

Gunawardena, C. N., Nolla, A. C., Wilson, P. L., Lopez-Islas, J. R., Ramirez-Angel, N., & Megchun-Alpizar, R. M. (2001). A Cross-cultural study of group process and development in online conferences. *Distance Education, 22*(1), 85-121. https://doi.org/10.1080/0158791010220106

Hrastinski, S. (2008). A Study of asynchronous and synchronous e-learning methods discovered that each supports different purposes. *Educause Quarterly, 4*, 51–55. https://er.educause.edu/-/media/files/article-downloads/eqm0848.pdf

Hsieh, L. W. (2012). *Technology-supported project-based learning in a Taiwanese university oral communication course: A Case study* (Unpublished doctoral dissertation). Alliant International University, San Diego, CA.

Hsu, Y.-C., Ching, Y.-H., & Grabowski, B. L. (2014). Web 2.0 applications and practices for learning through collaboration. In J. M. Spector, M. D. Merrill, J. Elen, & M. J. Bishop (Eds.), *Handbook of research on educational communications and technology* (4th ed.) (pp. 747-758). Springer. http://dx.doi.org/10.1007/978-1-4614-3185-5_60

Hughes, M., Ventura, S., & Dando, M. (2007). Assessing social presence in online discussion groups: A Replication study. *Innovations in Education and Teaching International, 44* (1), 17–29. https://doi.org/10.1080/14703290601090366

Kay, R. H. (2006). Developing a comprehensive metric for assessing discussion board effectiveness. *British Journal of Educational Technology, 37*(5), 761–783. https://doi.org/10.1111/j.1467-8535.2006.00560.x

Khurana, C. (2016). *Exploring the role of multimedia in enhancing social presence in an asynchronous online course* (Unpublished doctoral dissertation). The State University of New Jersey, New Brunswick, NJ.

King, K. (2008). *Comparison of social presence in voice-based and text-based asynchronous computer conferencing* (Unpublished doctoral dissertation). Nova Southeastern University, Davie, FL.

Kirby, E. G., & Hulan, N. (2016). Student perceptions of self and community within an online environment: The Use of VoiceThread to foster community. *Journal of Teaching and Learning with Technology, 5*(1), 87-99. https://doi.org/10.14434/jotlt.v5n1.19411

Krista, J. L. (2011). *Digital communication applications in the online learning environment* (Unpublished doctoral dissertation). Oklahoma State University, Stillwater, OK.

Lambert, J. L., & Fisher, J. L. (2013). Community of Inquiry framework: Establishing community in an online course. *Journal of Interactive Online Learning, 12*(1), 1-16.

Lipman, M. (2003). *Thinking in education* (2nd ed). Cambridge University Press. https://doi.org/10.1017/CBO9780511840272

Liu, S. Y., Gomez, J., & Yen, C.-J. (2009). Community college online course retention and final grade: Predictability of social presence. *Journal of Interactive Online Learning, 8*(2), 165-182. https://digitalcommons.odu.edu/efl_fac_pubs/10/?utm_source=digitalcommons.odu.edu%2Fefl_fac_pubs%2F10&utm_medium=PDF&utm_campaign=PDFCoverPages

Lowenthal, P. R., & Dunlap, J. C. (2020). Social presence and online discussions: A Mixed method investigation. *Distance Education, 41*(4), 490-514. https://doi.org/10.1080/01587919.2020.1821603

Lowenthal, P. R., & Snelson, C. (2017). In search of a better understanding of social presence: An Investigation into how researchers define social presence. *Distance Education, 38*(2), 141-159. https://doi.org/10.1080/01587919.2017.1324727

Marmon, M. (2018). *Enhancing social presence in online learning environments*. IGI Global. https://doi.org/10.4018/978-1-5225-3229-3

Meyer, K. (2013). The case for the Community of Inquiry (CoI) influencing student retention. In Z. Akyol & D. R. Garrison (Eds.), *Educational communities of inquiry: Theoretical framework, research, and practice* (pp. 317-333). IGI Global. https://doi.org/10.4018/978-1-4666-2110-7.ch015

Moore, C., & Greenland, S. (2017). Employment-driven online student attrition and the assessment policy divide: An Australian open-access higher education perspective. *Journal of Open, Flexible and Distance Learning, 21*(1), 52-62. http://www.jofdl.nz/index.php/JOFDL/article/view/286/217

Rovai, A. P., & Downey, J. R. (2010). Why some distance education programs fail while others succeed in a global environment. *The Internet and Higher Education, 13*, 141–147. http://dx.doi.org/10.1016/j.iheduc.2009.07.001

Rourke, L., Anderson, T., Garrison, D. R., & Archer, W. (1999). Assessing social presence in asynchronous text-based computer conferencing. *Journal of Distance Education, 14*(2), 50-71. https://www.learntechlib.org/p/92000/

Rourke, L., Anderson, T., Garrison, D., & Archer, W. (2001). Methodological issues in the content analysis of computer conference transcripts. *International Journal of Artificial Intelligence in Education, 12*(2001), 8-22.

Sadera, W. A., Robertson, J., Song, L., & Midon, M. N. (2009). The role of community in online learning success. *MERLOT Journal of Online Learning and Teaching, 5*(2), 277-284. https://jolt.merlot.org/vol5no2/sadera_0609.pdf

Sato, E., Chen, J. C., & Jourdain, S. (2017). Integrating digital technology in an intensive, fully online college course for Japanese beginning learners: A standards-based, performance-driven approach. *The Modern Language Journal, 101*(4), 756-775. https://doi.org/10.1111/modl.12432

Short, J., Williams, E., & Christie, B. (1976). *The Social psychology of telecommunications*. Wiley.

Swan, K. (2017). Multiple perspectives on social presence in online learning. In A. L. Whiteside, A. G. Dikkers, & K. Swan (Eds.), *Social presence in online learning: Multiple perspectives on practice and research* (pp. 3-10). Stylus Publishing.

Swan, K., & Shih, L. F. (2005). On the nature and development of social presence in online course discussions. *Journal of Asynchronous Learning Networks, 9*(3), 115–136. http://dx.doi.org/10.24059/olj.v9i3.1788

Watts, L. (2016). Synchronous and asynchronous communication in distance learning: A Review of the literature. *The Quarterly Review of Distance Education, 17*(1), 23–32. https://www.proquest.com/scholarly-journals/synchronous-asynchronous-communication-distance/docview/1794526758/se-2?accountid=10382

Willging, P. A., & Johnson, S. D. (2009). Factors that influence students' decision to drop out of online courses. *Journal of Asynchronous Learning Networks, 13*(3), 115–127. https://www.learntechlib.org/p/104037/

Wu, L. (2015). *Investigating social presence in the voice-based chat room and the text-based forum in the Chinese online learning context* (Unpublished doctoral dissertation). University of the West of England, Bristol, UK. http://eprints.uwe.ac.uk/27173

Appendix. Topical distributions of social presence instances and SPD

Tasks	DB instances / posts	DB density (SPD)	VT instances / posts	VT density (SPD)
1a Post your T-charts: Identifying the advantages and disadvantages of the technology you have chosen here. Check out some of your peer's T-charts.	43/24	1.79	124/29	4.27
1b Post your lesson plans here: Check out at least one other student's work and make a comment.	62/18	3.44	64/13	4.92
2a Post your reactions to the 21st Century Pedagogy video here.	55/14	3.92	98/15	6.53
2b Share an article you found interesting from the Hybrid Pedagogy Journal.	19/12	1.58	43/12	3.58
2c Post your Teaching Strategies for the Net Generation Prezi here: Check out some other students' work.	23/8	2.87	105/13	8.07
3a Critical Reflection: Complete the table on p.118 of your text. and post the result here.	18/9	2	64/13	4.92
3b Post a link to your Scratch creations here: Marvel at some other students' work as well.	15/4	3.75	110/17	6.47
4 Complete this short survey: At the end of the survey there are three questions to think about. Post your thoughts here. Your unit coordinator will post the class results of the survey later in the study period.	34/16	2.12	50/10	5
5 Post your Y-charts here: Don't forget to check out other students' work.	11/5	2.2	64/13	4.92
6a Watch this video then post your feelings and reflections about cybersafety.	33/9	3.66	130/17	7.64
6b Post a link to your curated resources on cybersafety here: Check out other students lists.	3/4	0.75	52/13	4
7a Post a link to a video or website you could use in teaching about cybersafety to a class: Click on some other students' links.	2/4	0.5	66/18	3.66
7b Post your PDF containing a Canva and lesson plan here: Enjoy viewing and commenting on other students' work.	3/2	1.5	108/20	5.4
8a Share an idea for a flipped or blended learning activity that uses technology here.	19/7	2.71	37/8	4.62
8b Share your thoughts on either the MOOC you joined or the online community you joined here.	12/3	4	27/4	6.75
9 Post your KWLH diagrams here.	0	0	56/12	4.66
10 If you wish you may post your constructive thoughts about this unit here and we will try to improve things based on your suggestions.	0	0	47/5	9.4