A case study of language learners' social presence in synchronous CMC

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Abstract

This study adopts a case study approach to investigate the impacts of synchronous computer-mediated communication (CMC) learning environments on learners' perception of social presence. The participants were twelve French as a foreign language (FFL) beginners in a Taiwanese university. Divided into three groups, they conducted some tasks in three different learning environments (video/audio, audio and face-to-face) during an academic semester. Before each oral task, all the participants had to conduct the same task in synchronous text chat. The participants' interview transcriptions, learning journals and the instructor's observation journal provided information about the impacts of each environment on their perception of social presence. The results of the study suggested that the differences in the environments are reflected in the learners' perception of social presence.

1 Introduction

Social presence is considered by some CMC researchers (e.g. Gunawardena, 1995; Garrison, Anderson & Archer, 2000; Ubon & Kimble, 2003; Lobry de Bruyn, 2004) as a key factor in determining the effectiveness of learning. Effectiveness in this study is defined as having "a strong causal relationship between an intervention, such as the use of a particular item of technology in a learning situation and a discernible change in the learning process, the learning climate or the learning achievement" (Felix, 2005: 4). For Ubon and Kimble (2003), social presence makes learning effective because "it helps increase social interaction, encourage learning satisfaction, initiate in-depth discussions and promote collaborative learning" (*op. cit.:* 2). When learners perceive a higher degree of social presence, they are more likely to engage in higher order critical thinking (Rourke, Anderson, Garrison & Archer, 1999; Garrison *et al.*, 2000), and to be more satisfied with their instructor (Richardson & Swan, 2003) and learning experience (Gunawardena & Zittle, 1997; Richardson & Swan, 2003). A paucity of social presence can cause more frustration (Ubon & Kimble, 2003) and reduce the consciousness of learning (Yamada, 2009).

Visual cues are an essential aspect of establishing social presence in face-to-face learning settings. Providing multiple nonverbal or paralinguistic cues, a face-to-face context is a rich medium for oral communication (Garrison *et al.*, 2000). Social climates

created by CMC are different from those in a traditional face-to-face classroom. Even two-way interactive video and audio media, which can transmit facial expressions, gestures, and tone of voice, create interaction patterns that are different from face-to-face communication patterns (Gunawardena, 1995).

The lack of visual and verbal cues has been shown to produce different effects on students' learning. Hampel (2006) indicated that a lack of such cues in an oral interaction environment could cause anxiety and lower motivation. Yamada and Akahori (2007) also found that the learners who used non-image systems in their study had higher communication anxiety due to the lack of social cues such as nodding. For Wang (2006), the availability of visual cues is helpful for distance learners to negotiate the meaning in online communication and to build a learning community, which is "an essential social environment for effective language learning" (Wang, 2004: 106). Without visual cues, tutors need to work harder to create a sense of community in a learning environment (Hampel & Stickler, 2005).

However, the paucity of nonverbal cues can also have positive effects on students' learning. For example, the participants in the synchronous written chat group in Sykes's (2005) study were found to communicate more explicitly. Sykes examined a group of Spanish learners' pragmatic development (refusals of an invitation) in three types of learning environments (synchronous written chat, synchronous oral chat and traditional face-to-face discussion) and discovered that the written group outperformed the other two groups in relation to complexity and variety of strategies. The lack of nonverbal cues can also reduce highly apprehensive communicators' nervousness and inhibition, and increase their interpersonal interaction and relational social presence (High & Caplan, 2009; Keaten & Kelly, 2008; Yildiz, 2009).

Short, Williams, and Christie (1976) suggested that people perceive a higher degree of social presence in some communication media than in others. When a medium is used for an educational purpose, teachers have to question if the chosen communication channels are beneficial to students' quality of learning. Compared to audio and video-based forms of CMC, the application of text-based CMC in education to the establishment of social presence may be more questionable, since nonverbal cues are lacking in this environment. When cues are fewer, social presence is lower, and when social presence decreases, so does sense of community (Rovai, 2002). Students who perceive a higher degree of social presence in a community will be more willing to participate actively in group and community activities.

Based on the above arguments, this study investigates the impacts of different synchronous CMC environments on language learners' perception of social presence.

2 Background literature

2.1 The concept of social presence

Social presence theory was developed by Short *et al.* (1976) at a time when computer mediated communication had not yet been conceptualized. They defined *social presence* as the "degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships" (*op. cit.*: 65). With its main focus on telephony and telephone conferencing, social presence theory was developed

to explain the impacts of a communication medium on the way people communicate and interact.

According to Short *et al.* (1976), social presence was regarded as an attribute of a communication medium. They speculated that communication media differ in their degree of social presence, which is determined by its "capacity to transmit information about facial expression, direction of looking, posture, dress and nonverbal cues" (*op. cit.*: 65). For them, some communication media are perceived by communicators as having a higher degree of social presence (e.g., video) than others.

The origin of social presence lies in two social psychology concepts: intimacy (Argyle & Dean, 1965) and immediacy (Wiener & Mehrabian, 1968). *Intimacy* is "a joint function of eye-contact, physical proximity, intimacy of topic, smiling, etc." (Argyle & Dean, 1965: 293). According to Argyle and Dean's *intimacy equilibrium theory*, changes in one dimension, e.g. increasing physical proximity, will result in compensatory changes in the other dimensions. For example, "reducing eye-contact makes greater proximity possible, and that greater proximity reduces eye-contact" (*op. cit.*: 304).

Immediacy refers to "the relationship between the speaker and the objects he communicates about, the addressee of his communication, or the communication itself" (Wiener & Mehrabian, 1968: 3). It is generated by both verbal and nonverbal behaviours (Gunawardena, 1995). Two forms of immediacy are distinguished: technological immediacy and social immediacy (Tu, 2001). Technological immediacy can be achieved by transmission of the maximum amount of information; social immediacy can be conveyed by speech with its associated verbal and nonverbal cues.

Short *et al.* (1976) hypothesized that language may replace or even over-compensate for missing nonverbal information. In their telephone conferencing research, they noticed that reduction of cues caused participants to change their behaviour. This principle of cue substitutability, supported by Argyle and Dean's equilibrium theory, suggests that other symbol systems can be adopted by communicators in order to express affective messages in contexts where nonverbal cues are unavailable (Gunawardena, 1995), such as text-based CMC.

2.2 Social presence and Communicative learning

Communication researchers started applying social presence theory to CMC in the late 1980s and early 1990s (Lowenthal, 2009). The theory has had a considerable effect on CMC research over the years, and the concept has been redefined by some CMC researchers. Garrison *et al.* (2000) defined social presence as "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" (*op. cit.*: 94). Biocca, Harms and Gregg (2001) defined social presence as "the moment-by-moment awareness of the copresence of another sentient being accompanied by a sense of engagement with the other" (*op. cit.*: 2).

The original social presence theory assumed that contact is in direct proportion to presence: more contact will increase social presence. According to the theory, the degree of social presence is equal to the degree of awareness of the other communicator in an interaction, which can be appreciably influenced by factors such as

facial expression, direction of gaze, posture, dress, nonverbal and vocal cues (Tu, 2001). Communication is considered effective when communication media have the appropriate social presence necessary for the level of interpersonal involvement that a task requires. According to the theory, face-to-face communication creates the most social presence and text-based CMC creates the least.

In face-to-face communication, nonverbal cues can enhance interaction (Ubon & Kimble, 2003). These cues have three functions: discourse functions closely related to speech production and understanding; dialogue functions related to turn-taking signals and back-channel signals that serve to smooth the flow of interaction; and socio-emotional or relational functions that influence a person's perception and impression formation (Bente, Rüggenberg, Kramer & Eschenburg, 2008). The loss of nonverbal cues can lead to misunderstanding (Thompson-Hayes, Gibson, Scott & Webb, 2009; Wang, 2006; Yildiz, 2009) or unemotional responses, as they serve to help communicators express their own emotions and decode or recognize others' emotions; or undersocial communication, as they may cause communicators to be less aware of the other person (Derks, Fischer & Bos, 2008). In comparison to face-to-face communication, text-based CMC appears to be extremely low in social presence due to its lack of nonverbal cues and feedback (Walther & Burgoon, 1992).

Different forms of text-based CMC environments may affect the social presence that learners construct (Tu, 2001). According to social presence theory, learners' social presence may be lower in asynchronous text chat due to the absence of immediacy, which enhances social presence (Gunawardena, 1995). Some students in So and Brush's (2008) blended-format course perceived that online communication media such as online forums had limited capacity to create a level of intimacy and immediacy due to their asynchronous nature. They considered that the lack of immediate feedback and synchronicity as negative aspects of their online collaborative learning.

Nevertheless, Walther (1992) noticed that communicators in a text-based CMC environment try to achieve desired levels of immediacy by manipulating verbal cues. They develop an ability to express emotion in written form (Gunawardena, 1995) by using paralanguage or emoticons to substitute for missing nonverbal cues (Gunawardena & Zittle, 1997; Tu, 2001; Ubon & Kimble, 2003), and to give affective information and show informality. In Lomicka and Lord's (2007) study, a group of foreign language teachers used a number of verbal cues (e.g., vulnerability, self-constructive comments, compliments, encouragement, asking questions, advice/opinion, agreement, salutations, the use of names and the expression of feeling) to develop social presence.

For Garrison *et al.* (2000), emotional expressions are crucial to communication because they can contribute to social presence development among individuals. They emphasized two examples of emotional expressions – the expression of humour and self–disclosure, "a sharing of feelings, attitudes, experiences, and interests" (*op. cit.*: 100). Mazer, Murphy, and Simonds (2007) reported that Facebook users can develop high levels of social presence through narrative self-disclosure.

In addition, appropriate course structure and activities could increase learners' perception of social presence (Yildiz, 2009). So and Brush (2008) found that learner-learner collaborative learning activities could generate more interactions and increase their perceived feelings of mutual connection. Similar results have also been found in Arnold and Ducate's (2006) study on a group of future foreign language

teachers' asynchronous interactions. Without the instructors' participation in the participants' online bulletin board discussions, social presence behaviours (emotional support, open communication and group cohesion) constituted the majority of the learners' online activity. The above results differ from those of Meyer's (2003) study where low levels of social presence were found in the learners' interactions. Meyer explained that the results could be caused by the fact that as the learners met face-to-face in addition to asynchronous online discussion, they might not consider it necessary to maintain online personal relationships.

Social presence in synchronous CMC (SCMC), where responses are received in real time, is greater than in asynchronous CMC (ACMC) (Levy & Stockwell, 2006). SCMC, effective in communication skills instruction in second language acquisition (Yamada & Akahori, 2007), allow diverse types of interaction involving text, audio, and audio/video chats. Although synchronous text chat does not accommodate nonverbal behaviour, its immediacy, one of the features of social presence, seems to facilitate communication (Yamada, 2009). English learners in Krish's (2008) study were observed to adapt some behaviours to build their social presence while participating in an online synchronous text-chat tutorial. Those behaviours observed included agreeing and disagreeing, showing enthusiasm, correcting peers, expressing opinions and correcting incorrect words used.

Nonetheless, the power of nonverbal behaviours goes beyond immediacy. For Yamada (2009), social cues "seem to play an important role in both enhancing social presence and promoting effective communicative language learning" (*op. cit.*: 831). He (Yamada & Akahori, 2007; Yamada, 2009) examined learners' perception of social presence in four types of SCMC: videoconferencing (image and voice), audioconferencing (voice but no image), text chat with image (image but no voice), and plain text chat (no image and no voice), and found that the simultaneous existence of image and voice allows learners to have a better perception of presence, since it could raise learners' consciousness of natural communication that is similar to a face-to-face communication. All participants who used a form of SCMC where their partner's image was available reported a positive effect on English communication. Resulting in more active communication, the availability of image could enhance the perceived ease of communication, help learners to better understand their partner's situation (Yamada, 2009), and therefore raise their consciousness of accuracy (Yamada & Akahori, 2007). Without image, the participants felt it difficult to communicate in the second language. Nevertheless, Bente *et al.* (2008) found that avatars also seemed to possess a similar function as image in terms of nonverbal activity and visual attention.

Tu and McIsaac (2002) suggested four dimensions and a number of variables for researchers to examine CMC learning from a social presence perspective. The dimensions they proposed consist of social context, online communication, interactivity and privacy. They examined social presence in an online learning environment, where the participants were 51 graduate level students. The findings of their qualitative data showed that social contexts, such as familiarity with recipients, informal relationships, better trust relationships, personally informative relationships, more private locations and positive psychological attitude towards technology, positively influence learners' perception of social presence. Some researchers

(Hampel & Hauck, 2004; Wang, 2004; Sykes, 2005) pointed out the adverse influences of technology problems on students' learning outcomes. Students may feel frustrated and dissatisfied with the course when they encounter difficulty using technology early in a course (Benoit, Benoit, Milyo & Hansen, 2006).

In addition, Tu and McIsaac's qualitative data revealed that keyboarding skills, expressiveness, characteristics of discussion, and language skills support online communication. Since text-based CMC users communicate with each other through typing, reading and writing, they need to possess a certain level of computer communication skills. Those who are not able, or who believe they are not able, to type, read or write well may experience communication anxiety (Gunawardena, 1991, cited in Tu, 2000).

Interactivity includes collaborative activities and communication styles used by CMC users (Tu, 2000; 2001). The possibilities for receiving feedback from another person can contribute to one's degree of salience in the interaction (Tu, 2001). Immediate responses also enhance interactivity and increase the level of social presence. For Gunawardena (1995), social presence can be created when one notices interactivity in a CMC environment. Tu and McIsaac (2002) suggested that timely response to CMC messages, use of stylistic communication styles (e.g. attentive, relaxed, friendly, open, personal and so on), casual conversations, appropriate message length, particular task types (planning, creativity, intellectual, decision-making, and social tasks), and suitable group sizes can have a positive effect on one's feeling of interactivity.

Privacy also influences the degree of social presence (Tu, 2001). The level of privacy is influenced by CMC users' perception in addition to the actual quality of security of CMC systems (Tu, 2002). When users perceive less privacy in a setting where they access CMC, their perception of social presence decreases. (Tu, 2001). In Tu and McIsaac's (2002) study, the participants ranked e-mail as the most private system and bulletin board as the least private. One-to-one real time discussion is considered more private than many-to-many real time discussion. CMC users who have a better knowledge of computer systems will perceive low privacy because of insecurity of the systems (Tu, 2002).

As far as I know, to date, little research has investigated the effect of different communication media on beginning-level foreign language learners' social presence in the acquisition of communicative competence. This study aims to explore the effect of different communication media on FFL beginners' social presence development in the process of learning productive skills and to provide a picture of how those media affect their social presence.

3 Methodology

3.1 Participants

The twelve beginning-level FFL Students (ten females and two males) were from diverse disciplines at a university in Taiwan. Their ages ranged from 19 to 23. They met in a two-hour basic French course every week. Before this study, they received only one semester of basic French instruction from the researcher as their instructor. All of them were living in the university dormitory and most of them were in the habit of daily surfing the Internet before the study.

3.2 Technology tools

This research was conducted with the use of webcams and/or headsets (with microphones attached) in synchronous CMC environments. The software used in this study was MSN Messenger, a successful chat program through which one can interact instantly with peers. It "creates an interface in which one can form a buddy list, consisting of people one regularly chats with" (Derks *et al.*, 2008: 6). For Cziko and Park (2003), the audio capability of MSN Messenger is excellent because "it is capable of high-quality, full-duplex voice communication with short latencies" (*op. cit.*: 20). Conversations carried out through MSN Messenger are much like conversations held by telephone. Moreover, all the participants had got used to communicating with their friends or families through MSN Messenger before the study, which could reduce the impact of unfamiliarity with the software on their learning. Thus the choice of MSN Messenger was considered suitable for the synchronous CMC spoken interactions of this study.

Before the start of the study, I distributed to each of them an identical set of webcam and headset (with a microphone attached). The participants were trained to use the tools before the first task.

3.3 Procedure

My research adopted a case study approach, which can allow researchers to observe cause-effect relationship in the study context and to "penetrate situations in ways that are not always susceptible to numerical analysis" (Cohen, Lawrence & Keith, 2003: 181). The research instruments selected consisted of the participants' interview transcriptions, learning journals, and the instructor's observation journal. The choice of these instruments was motivated by my belief that interviews can allow access to those data that researchers cannot observe (Merriam, 1990); and that journals can provide insights into personal teaching and learning experiences over the course of the study (Burgess, 1984).

The twelve students participated voluntarily after my presentation about the study (i.e., what data would be collected from them, how their data would be used). After the recruitment, they were divided into three groups. Four of the students (C, D, G, H) were paired with a partner they were not familiar with as I decided to examine the factor 'familiarity', which is a key factor in educational performance from the educational perspective (Yamada & Akahori, 2007).

At the beginning of the study, the participants were allotted two weeks to get familiar with the technology tools and their task partner. Then they were required to complete the first task, which involved instant exchange of an online text-based CMC with their assigned partner from their rooms at the university dormitory. After their first text chat, students in Groups 1 and 2 carried out the first oral task with their partner in voice-based CMC environments (Group 1 with the use of webcam and headset; Group 2 with the use of headset only) from their rooms. Students in Group 3 arranged a time to meet face-to-face to carry out the same oral activities during week 3 (see Table 1).

The study constituted cycles of three-week practice on three tasks (see Table 2). The task practice procedures and task content were posted on the class website in order for learners to follow the design of the study and complete the tasks appropriately. The content of the three tasks were inter-connected. The learners started by

Table 1 *Practice between participants*

Group	1				2				3			
Pair	1		2		3		4		5		6	
Participants	A	B	C	D	E	F	G	H	I	J	K	L
Text chat	MSN				MSN				MSN			
Voice chat	MSN with webcams/headsets (microphones attached)				MSN with headsets only (microphones attached)				F2F			

Table 2 *Task Content*

Task	Content
1	Self – introduction and introduction of others
2	Daily life description
3	Trip to Nice

introducing themselves and one of their best friends to their partner. In the second task, they had to describe their daily life to each other based on their timetable. The third task was an invitation to go on a trip. Working from their personal timetable, they planned a trip to Nice. They had to work out together the details for this trip (e.g. the departure and return dates, the trains they would take) by exploring the website of the French national railway company.

3.4 Data analysis

The data for this study were collected from participants' interview transcriptions, learning journals, and the instructor's observation journal. The frequency of participants' words in their interview transcriptions and learning journals was calculated and results are presented in Tables 3–8. Quantified summaries of those words provided a general idea of the frequency of activities or the strength of their feelings about those activities. Data analysis revealed several themes, which I interpreted in terms of their implications by exploring their interconnections and relation to the aims of this research.

4 Results

In this study, all the participants had to carry out the pre-tasks in the text-based CMC environment, where nonverbal cues are not available. They then performed the main oral tasks in three different learning situations: face-to-face, synchronous CMC with headset, and synchronous CMC with webcam and headset. Among the three situations, nonverbal cues are lacking in the synchronous CMC with headset learning mode. And even though visual cues are available in the two other environments, the

participants' interaction patterns created by them may be different. In the following sections, I present how these different learning environments affected the participants' social presence.

4.1 Synchronous text chat

The eight participants in Groups 1 and 2 said that they used MSN emoticons in synchronous CMC text communication (Table 3). But Participants C, D, G and H used emoticons more often than the others. Intriguingly, these four participants did not know their partner before the study; it seems that the level of familiarity influenced the participants' use of emoticons.

All the four participants considered the use of emoticons in their text discussion could allow their partner to know their feelings (Table 4). For Participant C, the use of emoticons could also attract her partner's interest and attention.

Although Participants A, B, E, and F also used emoticons in their MSN text communication, they actually used them less here than in other daily situations (Table 3). Participants E, F, K and L said that they did not use or avoided using emoticons because they considered the tasks to be formal assignments. For them, the use of emoticons would have increased the informality of the tasks (Table 5).

Participants E, F, and K pointed to the lack of visual cues as one disadvantage of the text-based communication, which can make the medium less personal. For Participant K, this paucity of visual cues might have had a bigger impact on his perception of social presence because he did not usually get immediate responses from his task partner.

E: Through typing, you cannot feel …
F: … your partner's emotions.
Interviewer: Do you consider it's a problem that you could not see your partner while doing the MSN tasks? …

Table 3 *The use of emoticons in the MSN written communication*

Participant	Group1				Group2				Group3			
	A	B	C	D	E	F	G	H	I	J	K	L
Emoticon use in this learning	1	1	3	2	1	1	2	3				
Emoticon use in other occasions	2	2			1	1					1	

Table 4 *Reasons for using emoticons*

Participant	Group1				Group2				Group3			
	A	B	C	D	E	F	G	H	I	J	K	L
Arouse the partner's interest			1									
Express their own feelings			2	1			1	2				
Have the partner pay more attention			1									

Table 5 *Reasons for not using emoticons*

Participant	Group1				Group2				Group3			
	A	B	C	D	E	F	G	H	I	J	K	L
Complicate the communication		1										
Consider the tasks as daily conversations		1										
Consider the tasks as formal assignments					1	1					1	1

K: Yes …sometimes through the MSN, I talk with a friend but don't get his/her immediate replies or he/she disappears suddenly …
Interviewer: With L, could you usually get his replies immediately?
K: Sometimes there were pauses …

Two participants (C and D) used the webcam in their MSN text communication, because they wanted to see each other's image. For Participant C, emoticons and the webcam had the same function – to convey feelings. When nonverbal cues are available through the webcam, her reason for using emoticons was reduced.

Interviewer: In this case, did you still feel the need to use emoticons when you used the webcam?
C: I felt less need when I used the webcam.
Interviewer: You just wanted to let your partner know how you really felt…
C: Yes. It's a kind of assistance…If I have to choose between the webcam and emoticons, I prefer the webcam … I would use less emoticons if I could use the webcam, since I could see my partner.

4.2 Oral chat in the three different learning environments

In addition to text-based communication, the participants in this study carried out the oral tasks in three different situations, which created different interaction patterns between them.

According to the participants, the level of immediacy was higher in face-to-face learning environments. Without technology problems, they considered problem solving was quicker, sound recording was more efficient, and meeting time arrangement was easier (Table 7). In addition, physical contact and intonation are available in face-to-face communication. And since they could perform the oral tasks wherever they want, their perception of privacy in the face-to-face learning mode was higher in comparison to the other two synchronous CMC modes.

Nevertheless, some participants (C, D, E, F) thought face-to-face oral communication would make them feel more nervous and less real (Table 8). In addition, the advantage of distance was lacking in face-to-face situations.

As to the synchronous CMC with the use of headset learning mode, only Participant I was of the opinion that it could possibly provide her with more authenticity than face to face, since the latter mode did not allow her to feel involved in real communication with others. However, Participants E and F, who had experienced

this learning mode, perceived a lack of authenticity in this environment because images were not available.

> I: … I think I probably like least f2f mode. …
> Interviewer: Why?
> I: … I think the other two modes will …make me feel more real…I just think if I use the other two modes, I might … have the feeling that I really communicate with others.

Synchronous CMC with the use of webcam and headset was the favourite learning mode of most participants (Table 6). Many took the view that the use of webcam allowed them to see mutual facial expressions and express each other's emotions, which made them feel more real (Table 7). For Participants B and D, the webcam

Table 6 *Participants' perception of their preferred learning environment after the study*

	Group1				Group2				Group3			
Participant	A	B	C	D	E	F	G	H	I	J	K	L
Face-to-face	v										v	v
Instant messaging with headset							v	v	v			
Instant messaging with webcam + headset		v	v	v	v	v	v	v	v			

Table 7 *Participants' views about the advantages of three learning environments*

	Group1				Group2				Group3			
Participant	A	B	C	D	E	F	G	H	I	J	K	L
F2F												
- Avoid technology problems	3	3	2		1	1						
- Learning location		1			1	2			2	2		
- Immediate problem solving	1				1	1						1
- Physical contacts			1									
-Partner's intonation available	1											
-Meeting time arrangement: easier					1	1						
-Task completion process: quicker	1				3	3						
Headset												
- Authentic communication									2			
Webcam + Headset												
-Authentic communication					3	3	2		2			
-Facial expressions/images available		1	2		3	4	2	1		1		
-Expressions of self feelings						1						
-Know the partner's feelings					1	2						
-Tension reduction			2	2	1	1						
-Time & Distance advantage	2	4		1		1	1					
- Feel more involved			1									
- Facilitate role playing		2		1								
- Text assistance						2						

Table 8 *Participants views about the disadvantages of three learning environments*

	Group1				Group2				Group3			
Participant	A	B	C	D	E	F	G	H	I	J	K	L
F2F												
Feel nervous			1	2	1	1						
Not authentic					3	4						
No distance advantage						1						
Headset												
No privacy					1	1						
No images of the partner					2	2						
Not authentic					1	2						
Webcam + Headset												
No privacy		1										
Bother/bothered roommates			1		1	1	1					

promoted the simulation of the tasks, which better involved Participant B in doing the oral tasks.

The other advantages of the learning environment suggested by the participants included the reduction of tension and the flexibility of time and distance (Table 7). Participant G gave the opinion that synchronous CMC with the use of webcam and headset is a rich learning medium because of the simultaneous availability of images, texts and voice. With her partner, they sometimes turned on the webcam, which was not included in their learning mode, to get each other's nonverbal cues in the spoken practices.

> G: With the webcam, I can see my partner's facial expression and gestures. I can know better what he/ she wants to say.

To sum up, the participants perceived the highest level of social presence in the synchronous CMC environment using webcam and headset, and the lowest in the synchronous CMC environment with headset only.

5 Discussion

The results showed that the three learning modes had different impacts on how social presence was perceived by the participants. The learners' perception of social presence was highest in the CMC with webcam and headset, and lowest in the CMC with headset only. And they perceived the highest immediacy in the face-to-face environment.

The main factors that impacted on the participants' perception of social presence in these three learning modes were the availability of nonverbal cues, peers' immediacy, and the feeling of being 'real'. The other factors were familiarity with their partners (Manstead, Lea & Goh, 2008), the location in which they performed the oral tasks and their perception of distance between each other (intimacy).

Although visual cues are available in both synchronous CMC with webcam and headset and also face-to-face, the participants favoured the former, where they

perceived themselves to be more real persons. Doing the oral tasks in the face-to-face context gave Participants I and J a feeling that they were doing assignments.

The participants' perception of mutual distance was the other factor that influenced their preference for the synchronous CMC using webcam and headset. Participants E and F stated that they would have been more nervous if they had carried out the oral tasks with someone unfamiliar in a face-to-face situation, which was confirmed by the evidence from Participants C and D. Unknown to each other before the study, they said they felt less nervous speaking through the webcam than face-to-face. For these four participants, the level of intimacy in face-to-face communication was higher, which generated more discomfort between the two unfamiliar communicators. This finding provides negative evidence against the assumption of the original research into social presence, namely that contact enhances social presence; it suggests rather than *an appropriate* level of contact can better enhance the learners' social presence.

In the text-based CMC environment, the participants' social presence was mostly enhanced by the use of emoticons. As noted in previous text-based CMC studies, the function of emoticons in this study was to substitute for missing nonverbal cues (Gunawardena & Zittle, 1997; Tu, 2001; Walther & D'Addario, 2001; Ubon & Kimble, 2003) and to express learners' affect (Rourke *et al.*, 1999; Tu & McIsaac, 2002). Some participants claimed that the lack of visual cues made text-based communication difficult and less personal (Baralt & Gurzynski-Weiss, 2011). In addition, as found in Rourke *et al.*'s (1999) study, a few of them (e.g. participants C and D) conveyed their feelings by self-disclosure, which also enhanced their social presence.

> D: *I'm shy to speak in French, especially when I need to record it. Hehe…,* but *after I told my partner about my feeling, I found that she had the same feeling as me.* ᴱᵐᵈᵐ *So, we encouraged to each other in order to smooth our mood. In this way, I felt better than before.*

Interestingly, Participant B avoided using emoticons because they seemed to make her less native speaker-like. It appeared that she regarded this text-based communication as oral communication; she did not put boundaries between writing and speaking.

> Interviewer: *Did you use emoticons in the written tasks to express your feelings?…*
> B: *Very few. …*
> Interviewer: *Why did you avoid using emoticons while doing the tasks?*
> B: *Because we had to delete them later. That's more complicated. (laughs)…*
> Interviewer: *Did you feel natural without using emoticons in your communication?*
> B: *I always pretended I was a French native speaker. (laughs)*
> Interviewer: *In the written tasks or in the spoken tasks?*
> B: *In both. (laughs) … I imaged the way they talked, their tones, …. I just wanted to pretend. (laughs)…*
> Interviewer: *Doing this made you not want to use emoticons, right?*
> B: *Mm…. Just like daily conversations.*

In addition to the unintended use of the webcam by four participants (C, D, G and H), the other surprising situation was two participants' (J and D) use of the dormitory telephone in MSN text communication, since they considered problem solving was more efficient (immediate) through telephone than through texts. Tu and McIsaac (2002)

pointed out that misunderstanding is a major concern for many text-based CMC students because they may have more difficulty in expressing intended meaning. The telephone use here can be considered as a strategy that the two learners employed to increase the quality of their communication, which in turn enhanced their feeling of social presence. For Participant D, the use of the telephone also helped to increase the familiarity with her partner, which was important in text-based CMC communication (Tu & McIsaac, 2002).

> *D: … We used the telephone only at the beginning of the experiment; after knowing better each other, we didn't use the telephone anymore.*

Although Participants C, D, G and H stated that they preferred having someone unfamiliar as their partner, unfamiliarity seems to have had a negative impact on the interaction between Participants C and D at the initial stage of the study. Participant D admitted feeling embarrassed, while Participant C was found to get nervous easily. It seems therefore reasonable to recommend that teachers can allot time for students to get to know each other at the start of learning.

> *C: No. I was hurried to send back my replies. I did not memorize those words immediately. I did not want to have my partner wait for me for a long time. I might feel sorry for that.*
> *D: I'm not so familiar with the new partner. (☺; embarrassing) I don't know whether we can work together very well.*

Keyboarding skills were found to be the other factor that was detrimental to the participants' perception of social presence in this study. Most participants were not familiar with alphabet keyboarding before the study. Since they had to type in order to communicate with each other in the text-based CMC environment, they were 'handicapped' in their online communication (Tu, 2001) because of their slow typing, which generated anxiety of the sort described by Gunawardena (1991, cited in Tu, 2001). The need to type French-specific symbols worsened this communication problem. Nevertheless, omitting typing these symbols would diminish the learners' attention to word forms and decrease their lexical accuracy.

Perse *et al.* (1992, cited in Tu, 2001) found that the better the students perceived their own computer expertise to be, the higher their social presence was. Therefore, I suggest that language teacher allows students familiarise themselves with keyboarding skills required for their learning before the course.

To sum up, the learning mode had major effects on the participants' perception of social presence. The level of social presence that they perceived was the highest in the CMC using webcam and headset and the lowest in the CMC using headset only. The availability of facial expressions played a vital role in improving the participants' social presence in CMC. Lack of familiarity and keyboarding skills were two factors that negatively affected the participants' social presence.

6 Limitation

One factor that influenced the validity of my study was the keyboarding problem. All the participants were used to a Chinese/English keyboard, although they were not

good at typing in English. But since the target language was French, the fact that they had to type out French-specific symbols complicated the physical process of typing and therefore communication. The availability of French keyboards or the use of virtual French keyboards might have a different effect on the quality of learners' communication, which in turn could influence their social presence to some extent. This is worthy of further investigation in future similar studies.

In addition, the place where the participants carried out their online tasks had a significant effect on their perception of social presence. In this study, all the participants did those tasks in the university dormitory, where many of them were concerned that their roommates might hear their conversation; privacy was therefore lacking in their online communication. We might recall that some of them stated that privacy was one of the advantages of face-to-face communication. As Tu and McIsaac (2002) pointed out, the location where learners access CMC has a major impact on their feelings of privacy: the learner perceives less privacy in a more public location, such as a computer laboratory. Thus, a higher perception of social presence can be expected if participants conduct their online tasks in a more private setting, for example an individual room, as opposed to a dormitory.

7 Conclusions

The results of this study should be interpreted with caution because of its small sample size, which does not allow its results to be generalized. The three CMC environments in this case study had different impacts on the participants' perceptions. The use of the webcam seemed to be vital to the enhancement of the participants' social presence in CMC. Despite some technology problems occurring over the course of the study (e.g. the bad quality of the Internet connection), most of them favoured CMC with webcam and headset mode because they viewed the availability of their partner's facial expressions as advantageous. Although non-verbal cues were also available in the face-to-face setting, they did not feel 'real' in that environment. Their feeling of being 'real' is possibly related to the design of the tasks, in which they were supposed to meet their partner the first time at a chat forum. According to the task situations, the webcam-plus-headset mode seemed to provide a more 'authentic' environment than the face-to-face environment. However, this task effect on learners' social presence in CMC needs to be further explored in future research.

In addition, some of the learners stated they felt less nervous about communicating with their partner in CMC than in the face-to-face setting. Their words evidenced the findings of Rice and Markey (2008) who noted that unfamiliar interlocutors tended to be less anxious after CMC than after a face-to-face chat. For these learners, the level of intimacy is higher in the face-to-face than in the CMC environment; therefore, they feel less comfortable in communicating. This finding is in line with Rourke *et al*.'s (1999) claim that "there is an optimal level above which too much social presence may be detrimental to learning" (*op. cit*.: 16).

Lack of familiarity and keyboarding skills seemed to influence the participants' social presence negatively, as reported in Tu and McIsaac's (2002) study. The fact that the four participants who were unknown to their partner at the beginning of the

study used the webcam and the emoticons more often compared to their peers in the same groups pointed to greater anxiety about being misunderstood in CMC. As Garrison *et al.* (2000) indicated, the lack of visual cues might present particular challenges to the establishment of social presence when participants in CMC have never met. Using webcams and emoticons that allowed them to convey their feelings and know the emotional states of their partner helped them reduce their communication anxiety, which supports the findings of some previous studies (e.g. Hampel, 2006; Yamada & Akahori, 2007).

Steinweg, Trujillo, Jeffs and Warren (2006) suggested that teachers could establish students' social presence by using particular strategies. Here I would like to stress two strategies for future use in similar teaching situations: allotting students time to develop their keyboarding skills, and time to get to know their task partner at the start of a new online language course. Doing so could reduce learners' communication anxiety and their feelings of social isolation (Garrison *et al.*, 2000).

Although this study is limited by the small sample size, its results support the findings of some previous studies. It is therefore hoped that this study can make a modest contribution to the CALL literature on the topic of social presence.

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Reference

Argyle, M. and Dean, J. (1965) Eye contact, distance and affiliation. *Sociometry*, **28**: 289–304.

Arnold, N. and Ducate, L. (2006) Future foreign language teachers' social and cognitive collaboration in an online environment. *Language Learning & Technology*, **10**(1): 42–66.

Baralt, M. and Gurzynski-Weiss, L. (2011) Comparing learners' state anxiety during task-based interaction in computer-mediated and face-to-face communication. *Language Teaching Research*, **15**(2): 201–229.

Benoit, P. J., Benoit, W. L., Milyo, J. and Hansen, G. J. (2006) *The effects of traditional vs. web-assisted instruction on student learning and satisfaction*. Columbia, MO: The Graduate School, University of Missouri.

Bente, G., Rüggenberg, S., Kramer, N. C. and Exchenburg, F. (2008) Avatar-mediated networking: increasing social presence and interpersonal trust in net-based collaborations. *Human Communication Research*, **34**: 287–318.

Biocca, F., Harms, C. and Gregg, J. (2001) *The networked minds measure of social presence: pilot test of the factor structure and concurrent validity*. E. Lansing, MI: Media Interface and Network Design (MIND) Lab.

Burgess, R. (1984) Keeping a research diary. In: Bell, J., Bush, T., Fox, A., Goodey, J. and Goulding, S. (eds.), *Conducting small-scale investigations in educational management*. London: Harper & Row in association with the Open University.

Cziko, G. A. and Park, S. (2003) Internet audio communication for second language learning: A comparative review of six programs. *Language Learning and Technology*, **7**(1): 15–27.

Cohen, L., Lawrence, M. and Keith, M. (2003) *Research methods in Education*. London: Routledge Falmer.

Derks, D., Fischer, A. H. and Bos, A. E. R. (2008) The role of emotion in computer-mediated communication: A review. *Computers in Human Behavior*, **24**: 766–785.

Felix, U. (2005) Analysing recent CALL effectiveness research – towards a common agenda. *Computer Assisted Language Learning*, **18**(1&2): 1–32.

Garrison, D. R., Anderson, T. and Archer, W. (2000) Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, **2**(2-3): 87–105.

Gunawardena, C. N. (1995) Social presence theory and implications for interaction and collaborative learning in computer conferences. *International Journal of Educational Telecommunications*, **1**(2/3): 147–166.

Gunawardena, C. N. and Zittle, F. J. (1997) Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *The American Journal of Distance Education*, **11**(3): 8–26.

Hampel, R. and Hauck, M. (2004) Towards an effective use of audio conferenceing in distance language courses. *Language Leaning and Technology*, **8**(1): 66–82.

Hampel, R. and Stickler, U. (2005) New skills for new classrooms: training tutors to teach language online. *Computer Assisted Language Learning*, **18**(4): 311–326.

Hampel, R. (2006) Rethinking task design for the digital age: A framework for language teaching and learning in a synchronous online environment. *ReCALL*, **18**(1): 105–121.

High, A. and Caplan, S. (2009) Social anxiety and computer-mediated communication during initial interactions: implications for the hyperpersonal perspective. *Computers in Human Behavior*, **25**: 475–482.

Keaten, J. A. and Kelly, L. (2008) ''Re: We really need to talk'': affect for communication channels, competence, and fear of negative evaluation. *Communication Quarterly*, **56**: 407–426.

Krish, P. (2008) Social presence and learner participation in a text chat. *Reflections on English Language Teaching*, **7**(10): 63–70.

Levy, M. and Stockwell, G. (2006) *CALL dimensions: Options & Issues in computer assisted language learning*. Mahwah, NJ, USA: Lawrence Erlbaum Associates.

Lobry de Bruyn, L. (2004) Monitoring online communication: Can the development of convergence and social presence indicate an interactive learning environment? *Distance Education*, **25**(1): 67–81.

Lomicka, L. and Lord, G. (2007) Social presence in virtual communities of foreign language teachers. *System*, **35**: 208–228.

Lowenthal, P. R. (2009) Social presence. In: Rogers, P., Berg, G., Boettcher, J., Howard, C., Justice, L. and Schenk, K. (eds.), *Encyclopedia of distance and online learning* (2nd ed.). Information Science Reference.

Manstead, A. S. R., Lea, M. and Goh, J. (2008) Facing the future: emotion communication and the presence of others in the age of video-mediated communication. In: A. Kappas (ed.), *Face-to-face communication over the Internet: issues, research, challenges*. Cambridge: Cambridge University Press.

Mazer, J. P., Murphy, R. E. and Simonds, C. J. (2007) I'll see you on ''facebook'': the effects of computer-mediated teacher self-disclosure on students motivation, affective learning, and classroom climate. *Communication Education*, **56**: 1–17.

Merriam, S. B. (1990) *Case study research in education: A qualitative approach*. San Francisco: Jossey-Bass Pub.

Meyer, K. A. (2003) Face-to-face versus threaded discussions: the role of time and higher-order thinking. *JALN*, **7**(3): 55–64.

Rice, L. and Markey, P. M. (2008) The role of extraversion and neuroticism in influencing anxiety following computer-mediated interactions. *Personality and Individual Differences*, **46**: 35–39.

Richardson, J. C. and Swan, K. (2003) Examining social presence in online courses in relation to students' perceived learning and satisfaction. *JALN*, **7**(1): 68–87.

Rourke, L., Anderson, T., Garrison, D. R. and Archer, W. (1999) Assessing social presence in asynchronous text-based computer conferencing. *The Journal of Distance Education*, **14**(2): 50–71.

Rovai, A. (2002) Building sense of community at a distance. *International Review of Research in Open and Distance Learning*, **3**(1): 1–16.

Short, J., Williams, E. and Christie, B. (1976) *The social psychology of telecommunications*. London: John Wiley & Sons.

So, H. J. and Brush, T. A. (2008) Students perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education*, **51**: 318–336.

Steinweg, S., Trujillo, L., Jeffs, T. and Warren, S. (2006) Maintaining the personal touch in a growing program: strategies for establishing social presence in online classes. *Journal of the Research Center for Educational Technology*, **2**(2): 15–23.

Sykes, J. M. (2005) Synchronous CMC and pragmatic development: Effects of oral and written chat. *CALICO Journal*, **22**(3): 399–431.

Thompson-Hayes, M., Gibson, D., Scott, A. and Webb, L. (2009) Professorial collaborations via CMC: Interactional dialectics. *Computers in Human Behavior*, **25**: 208–216.

Tu, C. H. (2000) On-line learning migration: From social learning theory to social presence theory in CMC environment. *Journal of Network and Computer Applications*, **23**(1): 27–37.

Tu, C. H. (2001) How Chinese perceive social presence: An examination of interaction in online learning environment. *Educational Media International*, **38**(1): 45–60.

Tu, C. H. and McIsaac, M. (2002) The relationship of social presence and interaction in online classes. *The American Journal of Distance Education*, **16**(3): 131–150.

Tu, C. H. (2002) The impacts of text-based CMC on online social presence. *The Journal of Interactive Online Learning*, **1**(2): 1–24.

Ubon, N. A., and Kimble, C. (2003) Supporting the creation of social presence in online learning communities using asynchronous text-based CMC. *Proceedings of the 3rd International Conference on Technology in Teaching and Learning in Higher Education,* July 2003, Heidelberg, Germany, 295–300.

Walther, J. B. (1992) Interpersonal effects in computer-mediated interaction: A relational perspective. *Communication Research*, **19**: 52–90.

Walther, J. B. and Burgoon, J. K. (1992) Relational communication in computer-mediated interaction. *Human Communication Research*, **19**(1): 50–88.

Walther, J. B. and D'Addario, K. P. (2001) The impacts of emoticons on message interpretation in computer-mediated communication. *Social Science Computer Review*, **19**(3): 324–347.

Wang, Y. (2004) Supporting synchronous distance language learning with desktop videoconferencing. *Language Learning and Technology*, **8**(3): 90–121.

Wang, Y. (2006) Negotiation of meaning in desktop videoconferencing- supported distance language learning. *ReCALL*, **18**(1): 122–146.

Wiener, M. and Mehrabian, A. (1968) *Language within language: Immediacy, a channel in verbal communication*. New York: Appleton-Century-Crofts.

Yamada, M. and Akahori, K. (2007) Social presence in synchronous CMC-based language learning: how does it affect the productive performance and consciousness of learning objectives? *Computer Assisted Language Learning*, **20**(1): 37–65.

Yamada, M. (2009) The role of social presence in learner-centered communicative language learning using synchronous computer-mediated communication: Experimental study. *Computers & Education*, **52**: 820–833.

Yildiz, S. (2009) Social presence in the web-based classroom: implications for intercultural communication. *Journal of Studies in International Education*, **13**: 46–65.