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Synchronous Video Communication for Distance Education: the educators' perspective

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Abstract

The paper reports on the experienced educator perspective regarding human-to-human connection in distance education. The research questions aimed to fill gaps in the existing research literature, to investigate the role of the educator, to discover how learning and subject content are affected by contextual factors, to find out if it enhances the sense of togetherness (immediacy and intimacy). The Informed Grounded Theory and the Community of Inquiry model provided a scaffolding framework for designing interview questions and analyzing findings. The outcome of the analysis formulated a new theory called tele-proximity, which gives an explanation of how presences could work in synchronicity. The findings may help educators gain insight into how to use Synchronous Video Communication (SVC) and lead future research to dig deeper into the field of synchronicity and the importance of audiovisual cues.

Keywords: cognitive presence; Community of Inquiry Model (CoI); social presence; synchronous video enhanced communication (SVC); teaching presence; Teleproximity

Introduction

Distance education has taken global proportions and more and more people worldwide are studying in an "anytime anywhere" mode (Power & Gould-Morven, 2011). Synchronous Video Communication (SVC) has not been an option thoroughly investigated (Hrastinski, Keller & Carlsson, 2010). Hrastinski heightens the need for more research attention to synchronous e-learning because practitioners, who use and design synchronous learning scenarios, are in urgent need of guidance (Hrastinski *et al*., 2010) and they do not use them as widely as they could to enhance communication (Smyth, Andrews, Bordujenko & Caladine, 2011; Bower, Kennedy, Dalgano, Lee, Kenney & de Barba, 2012). In the same line of thought, Tomadaki and her colleagues indicate that greater integration of videoconferencing with open learning environments and other social media tools needs to be studied to make better sense to learners (Tomadaki, Quick & Scott, 2008) and Gillies (2008) deems that transferring face-to-face approaches to the videoconferencing suite is inadequate. Furthermore, the literature in the field of video enhanced synchronicity is to a large degree, uncharted and unorganized (Bower *et al*., 2012). This paper, taking into account the gaps in the literature, aims to shed light on the educational experiences of professors who teach online using synchronous video communication and answer the following questions:

- For what educational purposes (learning objectives) do instructors use synchronous teaching approaches?
- How does synchronicity affect teaching, cognitive and social presence?
- What contextual factors do instructors identify as influencing their use of synchronous teaching approaches?

Methodology

The research took place in the field of networked learning interdisciplinary courses for undergraduates and postgraduates, from a potentially international perspective, since the interviewees

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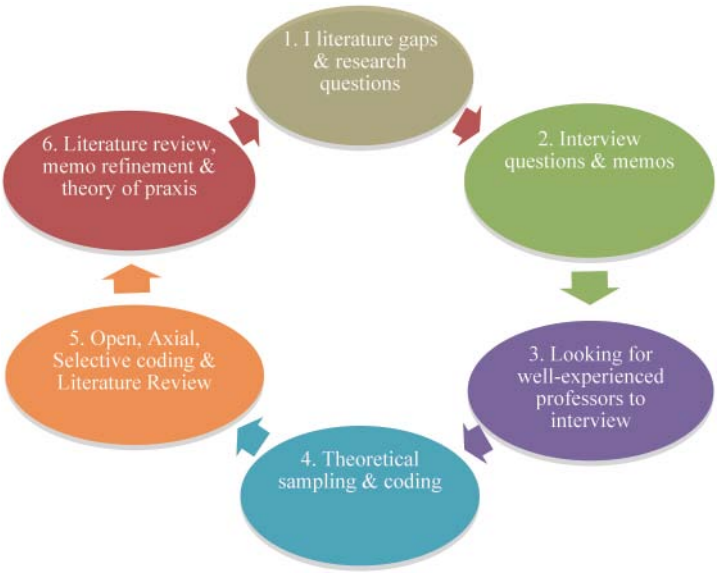

Figure 1: methodology

come from four continents and ten countries (the UK, the USA, Australia, Canada, France, Greece, Cyprus, South Korea, South Africa and Spain). On average, the participants had 8.2-year experience of teaching distant courses and used synchronous teaching approaches for 5.6 years. The experience in terms of time was the basis upon which the theoretical sampling was based, because the faculty who had the least experience in online education perceived the barriers as greater than those who had the most experience in online education (Lloyd, Byrne & McCoy, 2012). Under the scope of Informed Grounded Theory (Thornberg, 2012) and the Community of Inquiry model (Garrison, Anderson & Archer, 2000), the interview questions were designed.

According to the informed grounded theory (figure 1), the literature review not only helps the researcher to identify gaps, current praxis and narrow down the research questions but also to compare the specific findings with other research outcomes. The next step was to write down the questions for the semi-structured interview. When 18 well experienced instructors had participated, then the data was categorized based on the rationale of open, axial and selective coding. The final stage was to present the core category, teaching approaches and the contextual factors that influence the theory of SVC praxis and fill in the gaps identified in my literature review. At the end, critically reflecting on the memos of the research, the literature and the research outcomes and the researcher built the theory of Tele-proximity.

Tele-teacher presence

Teacher presence is the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes (Rourke, Anderson, Garrison & Archer, 2001). Teacher presence in SVC is called Tele-teacher presence. Being tele-present, educators could add to the authenticity and credibility of the university by coming in real-time contact with students. Many informants have indicated that the presence via synchronous video-enhanced conferencing seems to create new roles, which have the potential to lead to a new identity online while other claimed that good communicators have already developed these skills in class.

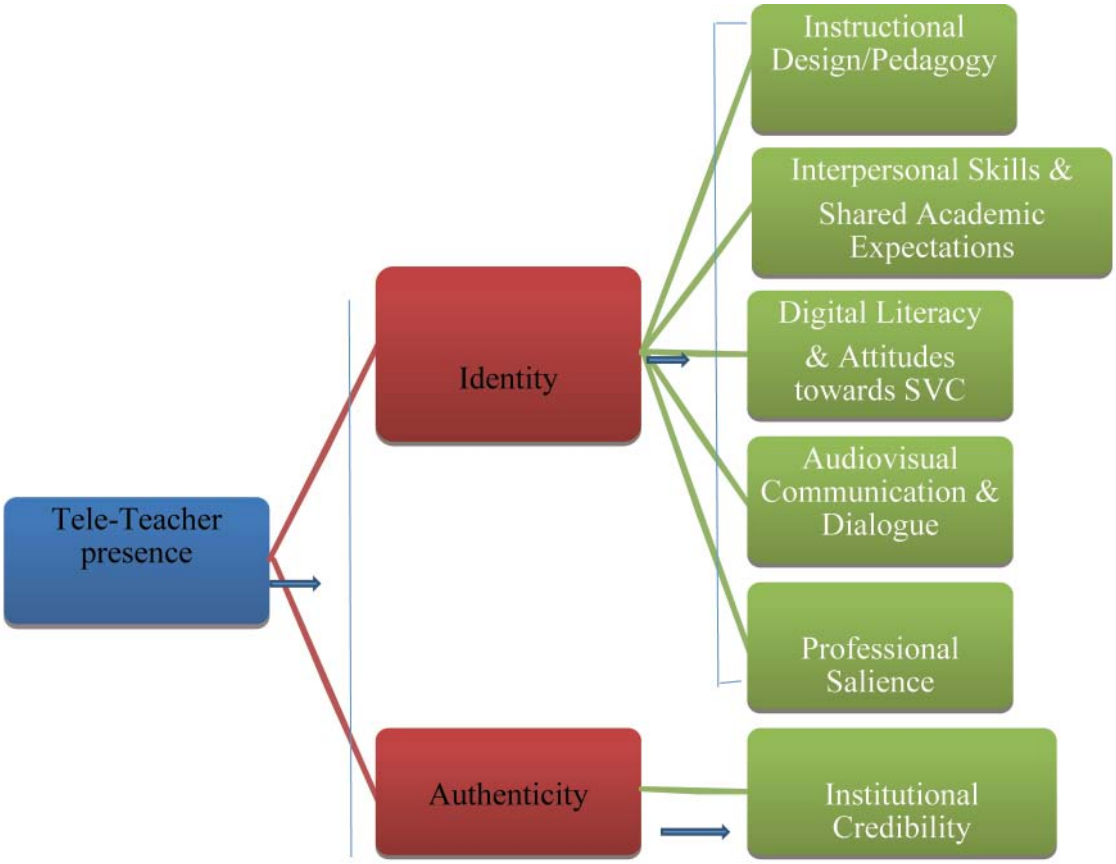

Figure 2: Tele-Teacher presence

Institutional authenticity & teaching persona on screen

The first concept that unexpectedly emerged from the interviews was the authenticity of e-learning courses (figure 2). As respondents put it, people earn degrees without going on campus and professors could instill knowledge and skills without knowing their students. There have been reported cases of dishonest attitudes of users, as well as agencies that provide "tailor-made" degrees dissertations, delivering ready-made courses without evaluation processes and unauthorized access to Internet. If the instructor uses quality time to contact with students, confirming that students are the ones registered for the course, the institutional credibility could be promoted.

Based on the data collected, knowing who is teaching who seems to be an important factor for both sides (students and instructors). For the part of the institution/instructors finding out more information about learners, expectations, learning styles, by synchronously talking with them and confirming identity and from the students' point of view confirming that the instructor is actually there to support them in person seems to be so crucial that some universities have made synchronous communication mandatory. SVC is a way to potentially safeguard that the degrees are given to those who earn them in order to minimize the cases of identity fraud.

Interviewees underlined the importance of identity/new roles online as well (figure 2). The identities that professors could create online seem to be affected by the instructional design/pedagogy adopted the instructors' digital literacy, interpersonal skills, the academic expectations/experiences shared quality of audiovisual communication, dialogue orchestration and professional salience.

Instructional design and pedagogy

Instructional design in SVC is defined as the process by which instruction is improved through the analysis of learning needs and systematic development of learning materials, tools and peoples' roles. While pedagogy as the Greek origin of the term dictates, is the instructor's leading with the purpose to model thinking, emotions and behaviors. The instructor's identity is portrayed by the instructional design and the pedagogy adopted on screen.

Educators in this study put emphasis on establishing protocols, making appropriate decision on what synchronous facilities to use and managing groups online. Enforcing their teaching style and design effectively, educators could accommodate students' needs in the limited time provided during online sessions and create a successful, motivated and motivating teaching persona.

Interpersonal skills & shared academic expectations and experiences

Effective communication and personal contact seem to have an impact on all presences in this study and in others. Hsieh (2010, p.34) studied the international perspectives of online instructors and found that teaching personas are based on self–expectations, interactivity/dialogue and evaluation criteria. Interestingly, they are the same as the factors related to Baxter's research (2011, 2012a, 2012b) on students' identity building. Interpersonal skills enhance interactivity especially in the diverse audience of online courses. Wang, Liao, Fan, Li and Lin (2009) claim that eastern students have not developed habits for interaction in the online environment compared with western students. Therefore, specific students need more help from educators to develop the habit of interactivity or dialogue and share their expectations and experiences. Hsieh (2010) interviewed online instructors who were very committed to facilitate students and use every technology available including SVC. He has found out that some of them expected to create/design their own teaching materials or tools not available by the institutions to enhance students' motivations and interests for learning as SVC respondents do. Research informants' views concur with Lloyd and his colleagues' studies (2012) that interpersonal barriers are increasing transactional distance in online education.

Instructional design/pedagogy and academic expectations define the role of the professor online (Hsieh, 2010) and shape students' identity (Baxter, 2011). Having realistic academic objectives and clarifying their role as a guide on the side or as a leading figure, educators could portray their tele-teaching presence. Sharing experiences and expectations in web-conferencing environments correlates with student satisfaction with online classes (Gurell, Kuo & Walker, 2010). Parchoma (2005) underlines the significance of clear and productive communication to promote common goals in virtual organization and networked communities. She explains that "maintaining shared perceptions through dialogue foster improvement of social capital" (Parchoma, 2005, p. 471). On the instructors' side, Baxter's studies (2011) and SVC educators interviewed, expressed the same satisfaction when interacting with students.

Digital literacy & attitudes towards synchronous video communication technologies

Educators pointed out that a teaching persona could be affected by technological obstacles, digital literacy and confidence in using the tools. Drawing similar examples from literature review, Bower wrote:

> Firstly, there are several tools to master; secondly, different tools need to be selected depending on communication requirements; thirdly, the affordances of tools in combination require consideration; and fourthly, decisions about how to use tools often need to be made in real time (Bower, 2011, p. 63).

Managing synchronous video mediated environments contains inherent difficulties above and beyond those experienced in face-to-face contexts because of the technology and mastering

the technology. As a result, instructors need to improve either their digital literacy or demand for significant technical support from the institutions they work for.

Xiaoxia "Silvie" Huang and E-Ling Hsiao (2012) draw on several studies and note that instructors' attitudes and acceptance of technology to a large degree determine how successful the use of technology is in teaching and learning. A lack of training and limited institutional support has been reported by informants and has also been identified as barriers to teaching via distance. What participants also reported was tutors' resistance to use technology, which is also found to agree with other studies (Anderson & Dron, 2010; Power & Gould-Morven, 2011).

Audiovisual communication

Synchronous video enhanced dialogue seems to affect the identity of instructors and learners because it could facilitate involvement/discussion in online environment. Educators maintained that the value of SVC is dialogue and audiovisual cues.

Bower (2011) draws on the work of other researchers and maintains that discursive interaction adjusts the direction of the online session while providing the opportunity for students and teachers to engage in knowledge construction processes. Audiovisual communication could give the opportunity for more timely and clear exchange of messages than asynchronous communication.

Voice and vision, according to the data collected, give a touch of liveliness to the construction of the online teaching persona. Audiovisual cues influence perception and emotional contagion. Walther's social information processing theory (Walther, 1992) assumes that educators could adapt their self-presentation in mediated environments. However, users may not always be consciously aware of technological distortions. In the case of video communication, the amount of delay may or may not be noticeable at a "conscious level" (Powers, Rauh, Henning, Buck & West, 2011, p. 1652). Unconsciously though, technological implications or lack of digital skills could influence negative perception about the teaching identity (Powers *et al.,* 2011). Audiovisual cues affect emotional contagion (Pentland, 2008; Christakis & Fowler, 2009). "We tend to synchronize our facial expressions, vocalizations, and postures unconsciously and rapidly and as a result we also meld our emotional states" (Christakis & Fowler, 2009, p. 37). Audiovisual information seems to create the contextual aesthetics of SVC, which can affect the instructor's online profile.

Instructors engaged with SVC, have the opportunity to develop the ability of prosopognosia; a term used for the ability all humans have to read audiovisual cues and respond accordingly. Christakis and Fowler (2009) and Pentland (2008, 2010) based their assumptions on the so-called mirror neurons system, an area of the brain that imitates facial expressions of others and feels like others (empathy).

Professional salience

In the same wavelength, some SVC informants are enthusiastic early adopters, sometimes with limited institutional technical support, who use their creativity to face the music, so as to come a step closer to their students and build an identity that makes their work more effective and rewarding through dialogue. In a respondent's words: "If you haven't met these students and know a bit about them, marking, it just becomes automatic task-ploughing through masses of anonymous scripts, when you know the students, then their work speaks to you in a meaningful way" (Baxter, 2012a, para. 24). Some studies (Hrastinski, 2008; Baxter, 2012a) and SVC respondents have shown the same need for a "human touch" and personally meaningful learning (Parchoma, 2005). Despite the fact that informants can exchange e-mails and telephone calls with their students, this seems to infer that seeing the person somehow makes interactions more qualitatively significant (Baxter, 2011, 2012a).

Many studies (Baxter 2012a) claim that working fully online, the instructors have to create a new identity and enhance their "sense of self salience or feeling of efficiency, self-confidence and motivation." Likewise, most of the educators interviewed pointed out that they need self–efficacy, confidence with technology and pedagogy to be motivated to engage more with synchronous media.

Figure 2 shows that tele-teacher presence potential affects the identity of the educators and the institutional authenticity. Identity could be influenced by the instructional design, interpersonal skills & shared academic expectations, professional salience, audiovisual communication, digital literacy and attitudes toward technology.

Tele-Cognitive Presence

Cognitive Presence is the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse (Garrison, Anderson & Archer, 2000). Tele-cognition was defined as embodied because of the audiovisual cues that SVC could provide while the participants are interacting, talking and seeing each other. In the framework of SVC, respondents acknowledge the effect of audiovisual cues.

As depicted in the diagram (figure 3), the questions asked were based on how SVC affects the learning process and the presentation of content. The learning process seems to be effective for problem base/case study approaches to explore, connect and apply new knowledge by mimicry of the thinking and appearance of experts, the demonstration of practical skills, and active participation through dialogue. SVC seems to be useful for revision and reflection purposes. As far as the content presentation is concerned, contents need to be displayed in limited time, a smaller chunk of information without losing connectivity with the students, through dialogue and audiovisual cues. The content of presentation emphasizes the mindful presence of participants rather than specific information display that could be delivered asynchronously as well. The cultural background of the student target group needs to be taken into account in the instructional design of synchronous video-mediated meetings.

Problem based approach

Some educators use SVC to implement problem based pedagogy, situated learning and case studies during real time sessions. They discuss case studies with their students with the purpose of enhancing their critical thinking and dialogue skills. Problem based learning can be linked closely to the Community of Inquiry model which uses exploration, integration and resolution as indicators of cognitive presence (Garrison *et al.,* 2000).

Mimicry of thinking, behaviors & social signaling

Imitating the expert's thinking with audiovisual communication and emotional contagion is a part of the learning process that was depicted in the data collected

The same argument is maintained by Lakoff (2008), who states that senses do not reach only our feelings, emotions and aesthetic sense, but intellect as well. For example, Allmendinger (2010) explains that gestures in particular can provide "cognitive support" aimed at conveying information that is helpful for understanding information presentation and discourse.

Baxter's (2012a) findings are in agreement with the informants of SVC study as far as the concept of embodiment is concerned. Baxter highlights the importance of body language as noted on research quotes, claiming that mirroring behaviors and reactions visually helps instructors to cope with the different voices/identities without "losing the plot."

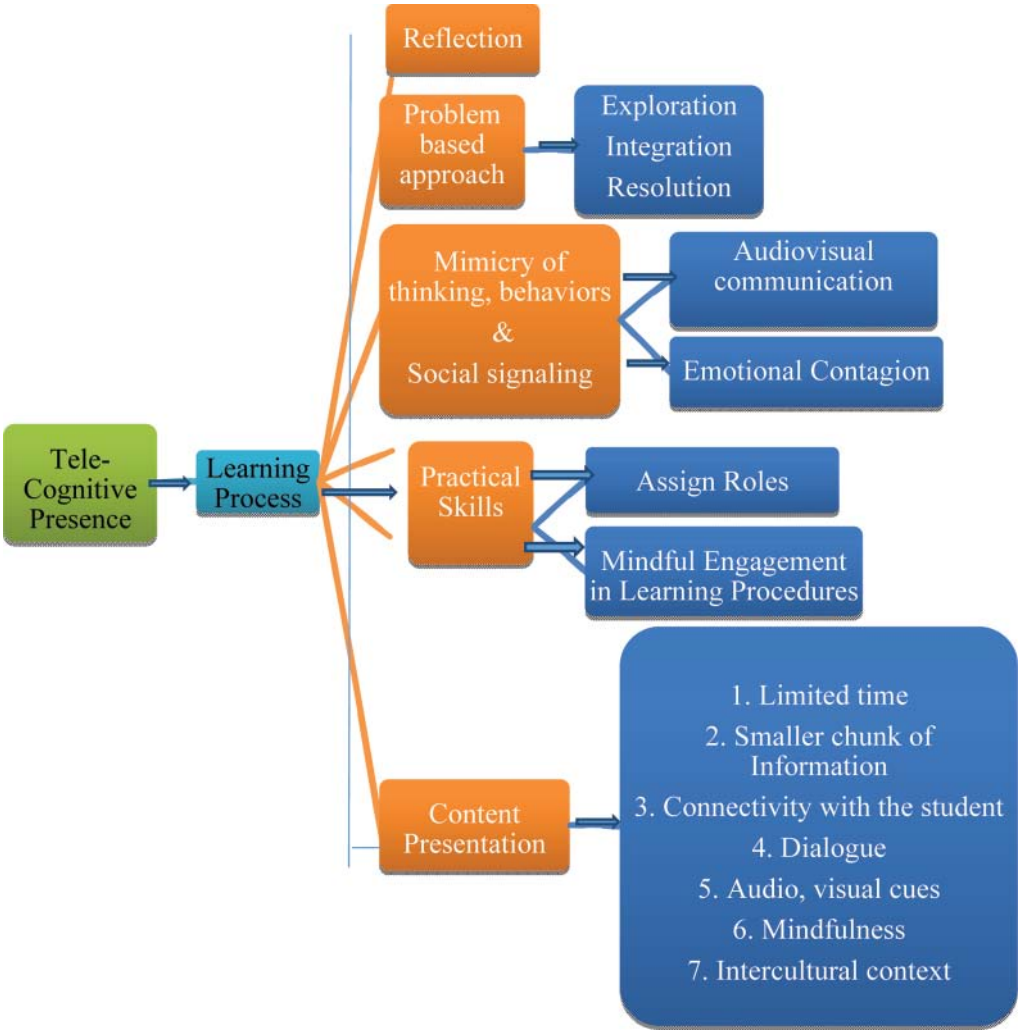

Figure 3: Tele-Cognitive Presence

Another aspect of the research outcomes is focusing on the impact audiovisual communication has on learning. Dr. Pentland directs the Human Dynamics Laboratory and the Media Lab Entrepreneurship Program, which helps develop international applications for new technologies. His research team has a lot to say about audiovisual cues called “honest signals." According to Pentland and the MIT research labs, honest signals are gestures, voice tones and body language that affect communications and trigger responses (Pentland, 2010). This perspective undoubtedly impacts the development of communication technologies such as videoconferencing.

Revision & reflection

Informants mentioned that they use synchronicity to revise syllabus units and reflect on what they have done. Sometimes they organize workshops to better prepare students for exams.

Practical skills: assigning roles & mindful engagement

SVC seems to work effectively for teaching and learning practical skills, which is not taken into account in the CoI model. Educators interviewed often used it in the medical field, language learning or examination techniques. Assigning roles and learning procedures are the reported uses.

Russell and Shepherd (2010) underline two fundamental design criteria for online role-play platforms in universities to create a space for complex social learning, support explicit reflection and theorizing as part of the role-play activity. The sense of place/space for interaction was emphasized by informants as well and it was called "stage" by Fayard (2006).

Regarding procedures and simulations, the visual element and the live, real time experience was a factor usually reported by the respondents. According to Fjermestad, Hiltz, and Zhang (2005) students who connected abstract science to real-world problems through simulations, microcomputer based laboratories, and video gained better results than students who experienced only traditional instructional methods. The brain practices actions, even when we observe others, as if we were doing them ourselves (Iacoboni, 2009). Pentland explains that watching somebody move, a part of the brain that corresponds to the same movement lights up. Christakis and Fowler (2009), Pentland (2008; 2010) and SVC informants agree about the audiovisual effects on cognition. For example, teaching foreign language skills or medical procedure could be beneficial to have some real life, audiovisual simulations.

Content presentation

As far as content presentation is concerned, there are specific limitations that need to be considered. Based on research data, online sessions have to be limited in time and normally could not last as long as face-to-face classes and transmit smaller chunks of information. They demand orchestration and are labor intensive for instructors). Pre-session and after-session activities seem to add value to the content presentation, although video-enhanced meetings seem not to be very efficient for lecturing. The research informants rarely use it.

Likewise, due to the limited time of online meetings, limited time is available for content presentation. Informants maintained that connectivity with the students' needs to be sustained to promote further engagement and to provide social cues for the instructor while talking.

Body-mindful presence is the content more than power point-slides, as a form of dialogue with social signaling and audiovisual cues. Screen sharing, power slides, videos are features available but the mindful presence of instructors and learners is what makes the difference.

SVC has the potential to be mindful learning, which can be identified with consciousness, the mental state of being fully in the moment. It is acting and adapting thoughts and behaviors in a changeable environment and conversations. Langer in her book *The Art of Mindful Learning* maintains that "At every moment in a mindful state, we are learning something, we are changing in some way, we are interacting with the environment so that both we and the environment are changed" (Langer, 1997, p. 137). Furthermore, she goes one step forward to claim (Langer, 1997, p. 64) that mindful engagement increases liking for learning activities and people involved. Mindfulness is defined as a "heightened sense of situational awareness and a conscious control over one's thoughts and behavior relative to the situation" (Marsano, 2003, p. 65).

Intercultural differences in learning style were reported by research informants as an important factor affecting the learning process and content presentation of SVC. Culture can be conceptualized as "shared motives, values, beliefs, identities, and interpretations or meanings of significant events that result from common experiences of members of collectives that are transmitted across generations'' (House, Hanges, Javidan, Dorfman & Gupta, 2004, p. 15).

Tele-Social Presence

The same groupings of ideas were used for tele-social presence but it was related more on audiovisual environment and embodiment.

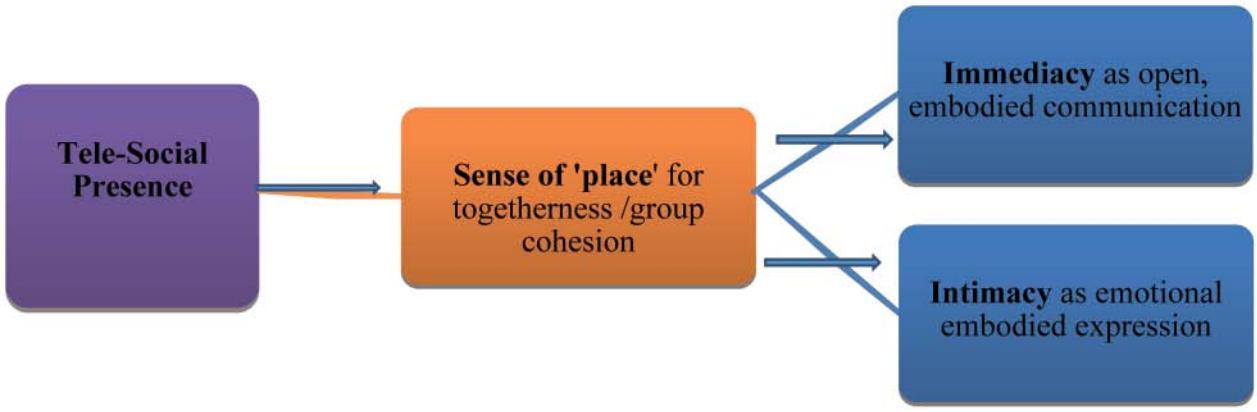

Figure 4: Tele-Social Presence

Tele-social presence is the projecting of identities in the tele-operational environments which, when used effectively, could create a "stage" for social interaction (figure 4). Creating a sense of place where online meetings are arranged with the purpose to promote group cohesion seems to be the role of tele-social presence.

Tele-social presence presupposes embodiment, which enriches participation with social signaling that SVC could depict; gestures, head-nodding, smiling and sharing of facial expressions. SVC, despite missing eye contact, the sense of touch and collocation, includes significant parts of body language that provide the sense of the human element in distance education. Informants concur with Huang and Hsiao (2012) who maintained that being present, asking, smiling, and nodding usually gives a sense of togetherness and potentially "bring people closer." However, audiovisual presence depends heavily on the quality of the device and software used. Togetherness and social network cohesion increase sharing and information exchange, which also influence motivation, participation and job satisfaction (Pentland, 2008).

Sense of place and togetherness

Research participants often used the theatrical metaphors to describe the online environment: *on stage, the show is live, actors /audience, contextual aesthetics, the climate of interactions on stage, appearances, and the tone of voices*. From their responses it could be assumed that a sense of trusting environment, a sense of place have to be created to make online participants come closer to each other and express themselves freely.

Audio visual and embodied cues

Audio visual cues called social signaling seem to influence social boding, group coherence which could lead to sharing and thus learning (Pentland, 2008, 2010; Christakis & Fowler, 2009). Social learning theories are based on social bonding and group management (Wenger, 2006). The audiovisual cues and emotional contagion seem to play a role to the social presence of instructors and students as they build their online identities and cooperate on line, as informants have emphasized

Togetherness as immediacy and intimacy

Immediacy was defined as timely open communication and instructor‘s feedback that seem to be valued by all research participants. The tone of voice or an indifferent predisposition could affect the psychological distant participants' experience. Immediate feedback could lead to better understanding, especially for learners with difficulties.

Categorization of Contextual Factors

Contextual factors could be summarized into three categories, based on factors affecting both students and tutors and factors related to students and instructors separately. In the first category, all participants may be influenced by technological implications (connectivity), synchronous tool choices, time zone differences (very early or very late), institutional support, type of knowledge (conceptual, practical etc.) and contextual aesthetics. Contextual aesthetics as a topic was brought up by three participants as the way instructors and students appear on screen (the way they dressed, their tone of voice, their appearance and movements, etiquette) and the distortion effects that can affect learning, impressions and perception.

On the one hand, educators' academic expectations, teaching style, pedagogy, professional salience and confidence with technology are recognized as important determinants of learning process. On the other, students' self-motivation, attention span in front of the monitor, level of task difficulty, language fluency, cultural background and personality traits are enlisted as factors affecting the community that communicates synchronously.

Tele-proximity

The research findings were compared with current literature to formulate a theory of praxis. The CoI framework was expanded to include synchronicity and the (teacher, cognitive and social) presences were redefined to incorporate a new understanding called Tele-proximity. Tele-proximity is online embodiment that explains how instructors and students are connected in synchronous networked environment via tele-operations. It consists of tele-teacher, tele-cognitive and tele-social presences with their specific aspects. Audiovisual cues seem to influence the learning and teaching experience by creating a different context, "a theatrical stage" for learners and educators to perform. The practical implications of the theory are to aid educators/instructional designers and administrators to make informed decisions on what, how and why to use synchronous video enhanced communication and to continue the scientific dialogue on the potential of synchronous video-enhanced technologies in distance education.

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