

Creating Social Presence in Digital Learning Environments: A Presence of Mind?

Steve Wheeler
Faculty of Education
University of Plymouth
United Kingdom

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Abstract

In this presentation I argue that social presence is an important feature of any successful learning activity, particularly within digital learning environments (DLEs). I also contend that the psychological processes that occur during learning should be acknowledged, measured and understood, if we are to design better and more effective DLEs. I argue that social presence and several other key factors such as immediacy of dialogue and student tenacity and autonomy are useful predictors of student satisfaction in technology supported distance education. I conclude by offering some recommendations on how to build social presence into DLEs.

Introduction

The use of digital learning in education is burgeoning. Many institutions around the globe have already invested heavily into web based delivery platforms and interactive communications technologies such as videoconferencing. A great deal has been published regarding the selection of technologies and much has been said about whether or not media have a direct influence on learning (See Clark, 1994; Kozma, 1994). Regardless of the rhetoric, there remains a need to discover which technology combinations create the best learning environments, and which media designs yield the most positive results.

Distance Education at the University of Plymouth

In recent years at the University of Plymouth, geographical remoteness and regional dispersion of campuses (4) and partner colleges (26) has prompted a concerted effort to develop effective telecommunication infrastructures which will support learning at a distance for a distributed population of around 30,000 students. In recent years a combination of audio, video and satellite television conferencing has been employed successfully to deliver training and education across the predominantly rural South West peninsula and beyond.

Recent innovations in convergence have introduced new integrative and adaptive technologies into the university's telematic infrastructure. They include streaming media and a range of managed learning environments, including the development of the online student portal system. Although evaluation has been conducted into the benefits of these DLEs, it has generally been driven from an institutional perspective, so that studies have focused primarily on cost benefits analysis, quality assurance and the management of learning technologies. Research into the student perceptions of technology supported learning has been largely ignored and this study attempts to redress some of the balance.

Questions this study addresses include the extent to which students feel technologies provide a viable alternative to classroom based learning, and the extent to which learning materials, experiences and outcomes are perceived to be at least equivalent to traditional delivery. Student satisfaction is a particularly important factor to measure, as it will inform distance educators about the needs and preferences of the target audience. As the title of this paper indicates, it is within the field of psychological enquiry that I believe the most valuable data will be located. It is important to identify individual differences in learning and to collate student perceptions, because these will be a better critical measure than learning outcomes or student grades as a determinant of good or bad learning environment design.

Several useful theories are available to the researcher who is interested in pursuing this avenue of enquiry. Transactional distance theory (Moore, 1993), equivalency theory (Simonson, 1999) and most notably, social presence theory

(Short, Williams & Christie, 1976) have all been particularly helpful models to apply to the analysis of learning in digital learning environments, particularly in distance education. Social presence theory is applied as the main theoretical framework.

Social Presence Theory

Short *et al* supposed that social presence represents the perception that one is communicating with people rather than with inanimate objects. This is despite being located in different places where all communication is digitally mediated. The ability of people to work together effectively in groups is central to social presence theory, so the model is of great interest to distance educators (Stein & Wanstreet, 2003) and provides a pertinent theoretical focus for this study. According to Short *et al*, when social presence is low, group members feel disconnected and group dynamics suffer. Conversely, when social presence is high, members should feel more engaged and involved in group processes.

Whilst the direction of causality may be questionable, Short *et al*'s explanation is nevertheless a useful one. They see social presence as the ability of individuals to collaborate effectively through technology, even when they are located in different locations and time frames (Sarbaugh-Thompson & Feldman, 1998). It is a form of 'absent presence' – an illusion created by the human mind's ability to manufacture feelings of connection and interaction, even when separated by distance. This is achieved through the hearing of vocal inflections, paraverbal utterances and ambient sounds (in audio communication such as telephone conferencing), and via textual cues and non-verbal devices such as emoticons and images (in text based communication such as e-mail).

In visual communication, such as videoconferencing, audio and visual cues are present to create the impression of connection and absent presence. Videoconferencing should therefore proffer the richest form of social presence of all the telecommunication technologies, and this study set out to test that premise.

Tu (2002) has argued that social presence can be defined in terms of a combination of social relationships, communication styles, task analyses, feedback levels and measures of immediacy. Stein and Wanstreet (2003) suggest that if social presence is high in a learning group, they will be better placed to substitute technology mediated communication for face to face communication. These findings are of interest to educators who aim to deliver dual-mode educational programmes. Similarly to Short *et al*, Garrison (1990) believes that social presence is the extent to which remote communicators can project themselves to others using any given technology or medium.

The use of text based communication, as seen for example in computer mediated communication or e-mail, is considered by some researchers to have

less potential to evoke social presence than visual media such as video conferencing (Lindlif & Shatzer, cited in Stacey, 2002, p 40). This is based on the assumption that social presence is best established when verbal and non verbal cues are present together in a transaction between two or more separated individuals (Rice, cited in Stacey, 2002, p 40). However, this position ignores the potent affordances that can be brought to the communication process by technologies such as e-mail and other forms of text based conferencing.

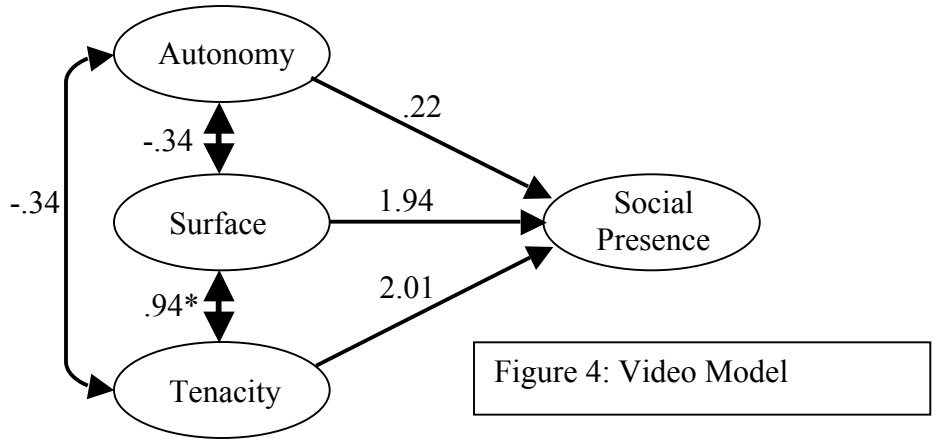
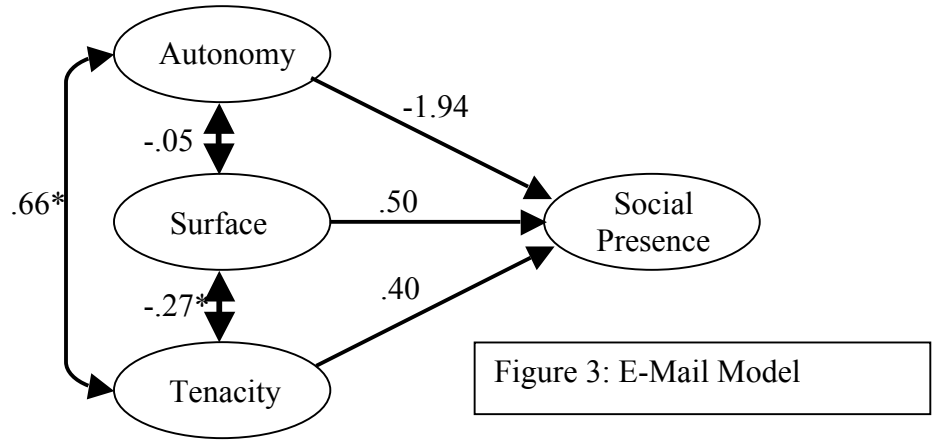
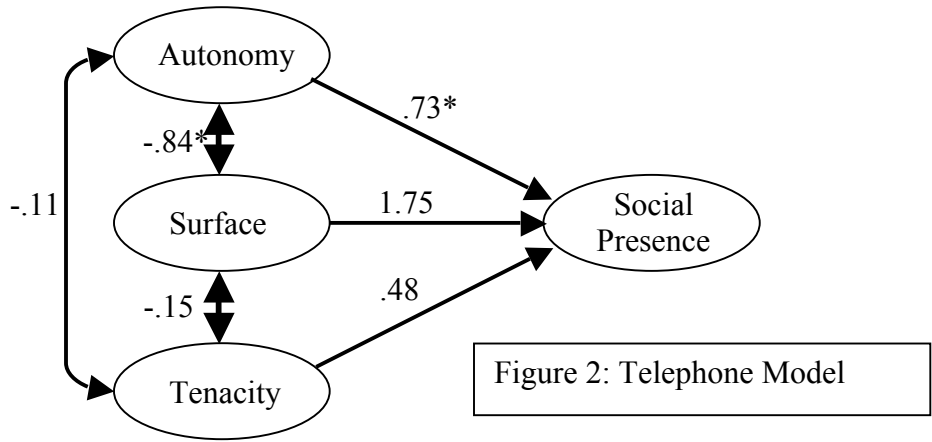
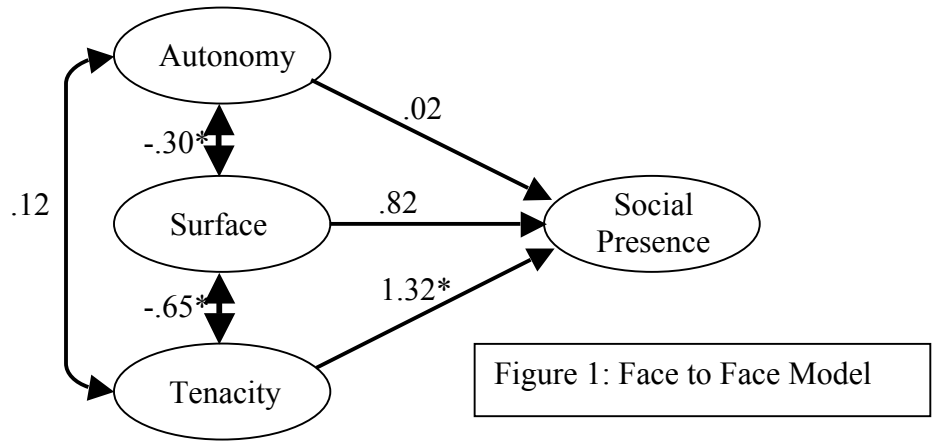
The Study

305 education students at the University of Plymouth were recruited as participants in the study (272 females and 33 males). Students were predominantly mature and full-time employed in teaching, with a mean age of 40.8 years (SD = 8.15). All participants in the sample completed two questionnaire combinations, one at the commencement of their studies and a second, similar questionnaire 6-9 months into their studies.

The questionnaire included Entwistle's Approaches to Study Inventory (1981), and two instruments created by the author to measure student support needs (SSI: Student Support Inventory; Wheeler, 2000) and communication mode perceptions (CMQ: Communication Mode Questionnaire). All participants completed questions in face-to-face mode and one other distance technology mode.

Results

Structural equation modelling was used to define pathways between factors and to calculate the values of interrelationships. Several measurement models were created to test whether technologies yielded different affordances to support social presence. Four path models are presented below in simple format showing coefficients predicting student perceptions in face to face, telephone, e-mail and videoconference modes. (NB: These are reduced models of larger multi-factorial structural models which will be published complete with a more comprehensive analysis elsewhere).



Discussion

The single arrows represent beta coefficients which predict causal direction, whilst the double arrows are correlation coefficients which indicate an association between factors. The ovals are latent variables modelled as factors, made up of items from the questionnaires which are grouped together using confirmatory factor analysis. An asterisk denotes that the path is statistically significant at a value of $p < .05$.

It can be seen that tenacious and autonomous students in a natural co-present learning space have a markedly different experience. Autonomous students, perhaps due to their independence, neither need nor experience a great deal of social presence. Tenacious students, conversely, tend to experience high levels of social presence. In telephone mode however, this effect is reversed, with autonomous students perceiving a higher level of connectedness. In e-mail mode, the more autonomy a student imposes on learning, the less social presence is perceived, whilst more tenacious students experience higher perceptions of connectedness. This may reflect the special affordances of e-mail to be less immediate, yet with a more permanent record of interaction than the telephone as a distance support technology.

One of the most interesting results can be seen in both telephone and e-mail models, where autonomous students experience high levels of social presence in telephone mode ($\beta = .73$, $p < .05$), but low levels in e-mail mode ($\beta = -1.94$, n.s.). This could be because independent students prefer the affordance of immediate response usually forthcoming when a telephone call to a tutor is made. They can be more proactive, with the tutor responding to their demands and needs in real time. In e-mail mode however, the autonomous student is compelled to relinquish an element of control of the conversation with the tutor, who can decide when and how to respond (if at all) to the message. In this situation, independent students may feel less connectedness with their tutors, i.e. less social presence, if they are not in control of the transaction.

Social presence is a vitally important component of any learning situation, and doubly so in electronically mediated contexts. Social presence is a perceived effect, and will vary for each student depending on their individual dispositions, so it is difficult to offer any clear recommendations. However, it is incumbent upon all educators and instructional designers to attempt to build as many features as possible into e-learning environments that foster a sense of social presence. This may for example, require the creation of a discussion space, either asynchronous or synchronous, which can mimic the student meeting spaces that exist in co-present campuses. It should also be noted that the video model yielded no significant results, possibly due to the small number of participants within this part of the sample.

One of the features I have designed into my own DLEs is a discussion area called 'Just 4 Fun' in which students are invited to 'let off steam' by posting humorous messages, in a form of online 'graffiti'. Students have reported that they not only become more familiar with posting online messages to each other, they also gain a sense of 'belonging to a learning community'. This is more than likely to occur due to their gaining a sense of ownership over the electronic learning space, as much as the capability of the system to afford them fairly immediate responses from other students and a permanent archive of messages.

Combined, these may create a sense of connectedness to unseen students across the void, which engender a perception of social presence. It is important that students become convinced at an early stage in online learning activities, that not only is posting messages a constructive activity, but that they are not interacting *with* a machine – instead they are interacting with their peers *through* a machine.

A key message from this study is that autonomous students prefer to use telephone communication to connect with their tutor and peers, capitalising on the immediacy and spontaneity of the technology, as well as the ability to dictate the pace and direction of the conversation in a proactive manner. Conversely, tenacious students may prefer to use e-mail to maintain a longer and more permanent discussion with their tutors and peers. Neither form of communication should be ruled out, but it should perhaps be acknowledged that student dispositions lead to varying perceptions of connectedness and presence.

Conclusion and Recommendations

So how can we create social presence within DLEs? One of the first considerations must be for tutors to respond sensitively to students in as comprehensive and immediate a manner as possible. These simple points may help to create an environment in which connectedness between students and their tutors and peers is possible:

1. Tutors should respond as quickly as possible to questions from remote learners. Students who are at a distance rightly feel socially isolated if they have important questions to ask and their tutor appears to ignore them by not answering an e-mail or phone message.
2. Students need a place to mix socially and this kind of facility should be built into any managed learning environment. This kind of space need not necessarily be oriented toward the course or 'learning' as such, but can be simply a space in which students share their ideas, let off steam and virtually 'get together'.
3. Tutors should acknowledge the differences in study approaches students adopt and try to cater for as many of these as possible within the design of courseware, guidance and tutorial support. Tenacious students will respond

differently to technology affordances than their autonomous counterparts, whilst surface learners require a completely different quality and intensity of support entirely.

4. Students should be actively encouraged to participate in regular discussion group postings so that they not only gain ownership over the discussion, but also gain, and are seen to gain feedback and responses from their peer group and tutors. Encouraging students to take turns to summarise and moderate discussions is also a useful exercise in online participation.

5. Bridging the psychological or perceptual gap between students and tutors may be the most important role a teacher can perform in the DLE. Without a clear perception of connection through social presence, students may lose motivation, do badly in their studies, or even drop out of the course.

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