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Web-mediated communication (WMC) and social interaction: a social psychological approach

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Abstract
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Keywords
psychological, interaction, approach, social, web, wmc, communication, mediated

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Web-Mediated Communication (WMC) and Social Interaction: A Social Psychological Approach

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ABSTRACT

It can be argued that social interaction is a critical factor in understanding Web-mediated communication. While the concept and domain of social interaction has been studied in several disciplines they are underdeveloped in the current Web-enabled environment. This paper adopts a social psychological point of view of conceptual and operational issues in relation to social interaction. Through a review of the literature, two domains of social interaction are identified: task and socio-emotional interaction. The literature review also addresses some problems in definition related to socio-emotional interaction. In an attempt to fill the gap between conceptual and operational definitions of social presence, we redefine the construct and suggest new measures for social presence relevant to the current technology enabled environment. Inspired by concepts from the Cultura-Historical Activity Theory, the authors adopt a social psychology approach to this issue. This paper aims to initiate constructive discussion about the universal definition and measurement of social interaction, in the context of Web-mediated communication.

Keywords: Web-Mediated Communication, Activity Theory, Social Interaction, Social Presence.

1. INTRODUCTION

Many researchers argue that the Web, as the convergence of computers and telecommunications, brings about a new paradigm for communications [36]. The underlying driving force of the paradigm shift is regarded as the hypermedia capabilities of the Web, which influence social interaction in two ways: interactivity and realistic presentation.

In regard to interactivity, the Web enables users to take control of their communication environments and provide feedback to each other through the hyperlink facility. Although there is no uniform definition, generally, feedback and control are considered as two essential elements of interactivity [e.g. 14]. Interactivity is a crucial concept in Web-mediated communication (WMC) because it creates a sense of online community.

Multimedia components create realistic presentation of information. For instance, many studies prove that even the use of "emoticons", "smileys", textual, or graphical symbols for expressing emotion, e.g. : -) or ✍, can enhance the socio-emotional experience [e.g. 19]. It is obvious that more complex and rich elements of multimedia will have an impact on social dynamics of communication. The promise of the Web, ultimately, lies in its potential to produce richly interconnected virtual community, where participants exchange profound social interaction [37].

It is our belief that a social psychology approach can contribute to our understanding of these phenomena. In most Western research, the disciplines of sociology and psychology are quite distinct so we have turned to the cultural-historical tradition of Eastern Europe for a suitable social psychology approach The authors have demonstrated elsewhere that Activity Theory, emerging from the Vygotskian cultural-historical psychology [38,39,40], provides a solid theoretical basis for understanding the social interaction of WMC [37].

Based on Activity Theory, Suh, Couchman and Park [37] identify the critical role of social interaction in WMC. The importance of social interaction, from an Activity Theoretical perspective, lies in the fact that human being's higher mental functions such as learning, memory, thinking, perception, and emotion are developed through social interaction [39]. For instance, it has been discovered that social interaction, such as social presence or a sense of online community, is a key to enhance learning performance [15]. Therefore, the study of social interaction, based on a social psychological approach such as Activity Theory, is especially useful to any area relying on communication such as Information Systems, Marketing, Psychology and Education.

However, our understanding of the concept and domain of social interaction when applied to WMC is underdeveloped. Although there have been abundant studies on social interaction, often the definitions are logically inconsistent and controversial. Inconsistent definition and a lack of agreement on definitions are problematic because they can lead to misleading conclusions and

wasteful debate [9]. Adoption of universal measures is also urgent because only a common operational definition may enable the researchers to interpret the phenomenon from the same direction and to accumulate experience as knowledge [13].

This study is designed to fill those gaps in the literature and provide constructive suggestion about how social interaction is defined and measured. Therefore, the purpose of this study is to provide a conceptual understanding of important and useful concepts related to social interaction. As a result, this study will provide a foundation for understanding and evaluating of WMC. The contribution of the present study is in various disciplines such as Social Psychology, Communication, and Information Systems, as well as Marketing.

2. WEB-MEDIATED COMMUNICATION (WMC)

Limitations of Computer-Mediated Communication (CMC)
Although the concept of social interaction has been studied in several disciplines (e.g. Sociology, Social Psychology, Education, Information Systems, and Communication), the study of social interaction relating to communication has been mainly conducted by CMC scholars. CMC studies have made a substantial contribution to understanding social interaction and an alternative concept of communication [30]. In a broad term, CMC refers to the process of human communication through computers including the use of isolated computers and networked systems.

Whilst CMC studies provide useful insights into mediated communication and social interaction, they have generally ignored some important aspects of communication. Firstly, they have focussed on a very narrow range of media such as email and computer conferencing, and therefore neglected the differences amongst media (e.g. email, Newsgroup, and the Web). Consequently, CMC media are regarded as just text-based media [3], which overlooks the conspicuous characteristics of the Web (e.g., interactivity and realistic presentation). Secondly, the study of CMC has focussed on the medium itself rather than the human being. Both Social Presence Theory [e.g. 33] and Media Richness Theory [e.g. 6], which are widely used by researchers of CMC, emphasise the importance of inherent characteristics of communication media. In these areas of study, researchers argue that use of communication media is solely dependent upon objective characteristics of the media regardless of user factors (e.g. motives, education, and usage) and their social context [10]. Finally, CMC does not consider diverse purposes of communication. Most CMC researchers to date typically have focussed on task-related communication. Hence, it is questionable whether the results of studies on CMC can be applied to other purposes of media use [41].

Future Direction of the Mediated Communication Study
The shortcomings of CMC studies provide some meaningful guidelines for the study of mediated communication including WMC. To begin with, the differences of the media should be considered because types of CMC vary widely in presentation tools and purposes of communication. For instance, email is a text-based, whereas the Web is a hypermedia-based medium. It can be assumed that user responses to the Web will be different from those to email. Accordingly, the result of an email research cannot be generalised to all CMC media.

Activity Theory insists that human activity involves purposes and human interactions [37]. This implies that a human being plays a central role in communication. Media are only mediating artefacts by which human beings interact with their environments and each other. Many researchers have begun to investigate the human side of CMC and they suggest that a personal computer can create social responses such as a sense of online community and friendship [34]. After all, WMC, as a form of CMC, should not be treated as a process of human-computer interaction [e.g. 29] but rather should be regarded as an activity human-human communication. That is the reason why a social psychological approach is needed for understanding WMC.

3. TASK AND SOCIO-EMOTIONAL DOMAIN OF SOCIAL INTERACTION

Social Interaction and WMC
Human interaction in communication has two conspicuous characteristics: social and reciprocal. Many researchers suggest that people respond to computers and characters just as they are interacting with other humans [27]. In other words, interaction happens "between" humans rather than "inside" humans. This notion implies that communication interaction is social.

The other characteristic of interaction is reciprocity. Reciprocity refers to ongoing process of exchange such as mutual understanding, exchanging information, or co-operation. Humans constitute a community, where they share common rules and interests. Reciprocity plays a critical role in a community because humans cannot share social rules and reality without it. Here we can define social interaction as "the process of continuous interchange between human beings".

Classification of Social Interaction
Early study of classification of social interaction goes back to the work of R. F. Bales and associates [2]. Interaction Process Analysis (IPA), which they invented to investigate group interactions, was the first scientific method in this area [22]. Bale [2] classified group interaction into two categories. Likewise, Hare [17] also identified two categories through a review of early literature. After 1950s, many researchers from diverse areas have developed classification schemes. While the authors use different vocabularies and sometimes approach from different point of view, there is a common thing. Most of authors classify interaction into two types, namely socio-emotional and task dimensions [e.g. 2, 17, 5, 34].

Task-Related (Cognitive) Interaction
The task domain is related to achieving the tasks. Usually a primary goal of communication is transmission of information. Hence, the first focus lies on the central process of information transmission. The efforts to get the job done and to solve problems are some examples of task related communication [42].

The task domain is regarded as a rational or cognitive function of human interaction. Therefore, it is measured by a user's subjective perception of media effectiveness. Popular measures are effectiveness, functionality, and usability. Media effectiveness is defined "the extent to which a medium is considered adequate for task accomplishment" [25]. Functionality refers to extent that communication media supports users to achieve their tasks [12]. Usability is composed of two constructs: usefulness and ease of use. Usefulness refers to the extent to which a user believes that the medium will enhance task performance [7]. On the other hand, ease of use is defined as the extent to which a user believe that the medium will be free of physical and mental effort [7]. It is obvious that the concepts of effectiveness, functionality, and usability are

very similar to each other. To date, usability (e.g. usefulness and ease of use) is the most frequently adopted concept, and measures which were developed by Davis [7]. Those measures have been tested and validated over a long period of time by many researchers, hence, it would not require further discussion.

Socio-Emotional (Affective) Interaction

Socio-emotional interaction is related to interpersonal relations such as friendship and positive (or negative) feelings to the other person. This domain is an affective (or emotional) side of social interaction. Traditionally, a major goal of communication was transmission of information. However, there is much evidence that socio-emotional interaction also has an effect on task performances. For example, through a review of literature, Guzzo and Dickson [16] identified that a sense of commitment to groups can positively contribute to task performance.

Socio-emotional interaction can be created not only by physical co-presence but also by non-physical environments [30]. Early work on socio-emotional interaction goes back to the works of Champness [5]. Through the study of users' reaction to a teleconference system (confravision), Champness identified that telecommunication created a considerable degree of "feelings of social contact with people at the other end (p. 16)" and the feeling of social contact was a critical factor in communication. Thereafter, a significant number of researchers have observed a socio-emotional component in the use of CMC systems [e.g. 33, 34]. More recently, many research findings suggest that CMC can generate affective relationships such as a sense of online community, which in turn improves task effectiveness [28].

Social Presence

Social presence may be the most common term used to describe socio-emotional interaction. The concept was originated by Champness [5], who had conducted a series of communication studies at the Communication Studies Group, University College, London in the early 1970s. Champness initially called the factor which indicated the "user's feelings of social contact with people at the other end (p. 16)" as "social contact". Similarly, Mehrabian and Russell [24] called the presence of others as "the specific kind of social contact" (p. 101). Later Short, Williams, and Christieet [33] have developed the concept, which have been named "social presence" and defined as "the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationship (p. 65)".

Although terms are somewhat different, they share one thing in common, that is the feeling of the other person's presence in the communication process. The presence of others or co-presence reflects the interpersonal relationship, hence, it can be called 'social presence'. However, this concept does not have dynamic interaction between humans. If we reflect active interaction in WMC [37], social presence can be finally defined as "the user's feeling that she or he is interacting (or communicating) with others."

Here we need to briefly discuss about Short *et al.*'s [33] definition of social presence. While they defined social presence as "the degree of salience of the other person in the interaction," they also defined it as "a quality of medium itself" (p. 65) in the same book. And they insisted that social presence is closely related to "technological immediacy (p. 73)". By the term technological immediacy they emphasised social presence as medium quality rather than human's feeling. Their inconsistent definitions ultimately can cause confusion not only in interpreting research results but also in selecting measures.

For instance, Short *et al.* [33] borrowed measures of social presence such as impersonal-personal, unsociable-sociable, insensitive-sensitive, and cold-warm from the work of Champness [4, 5]. As Champness [4, 5] termed these as "general attitudes toward the communication medium", these are measures of consumers' subjective states of mind rather than those of medium quality. According to Mehbrabian [23], immediacy is defined as closeness to others. He argued that the concept of technological immediacy is closely related to the attitude toward the media. Furthermore, one of the most commonly used measures of advertising effectiveness is the attitude toward the advertisement, which reflects consumer's overall feelings or perceptions toward the advertisement [11]. Considering these, Short *et al.*'s [33] measures of social presence would rather be called a general attitude toward the medium [e.g. 4, 5]. Alternatively, to emphasise the quality of the medium, those measures can be named as "social richness of the medium" [20].

However, the basic problem of Short *et al*'s measures is that those measures do not reflect the concept of co-presence, which is a generally agreed definition of social presence. This fact calls for more extensive discussion on the conceptual and operational definitions of social presence amongst scholars.

Assessing Socio-Emotional Interaction

As we discussed before, there are two ways of assessing socio-emotional interaction: (1) social presence as a feeling of co-presence, and (2) general attitudes toward the medium. No matter it is measured by general attitudes toward the medium or social presence, socio-emotional interaction is an affective domain. Therefore, measures should be designated to reflect users' feelings, emotions, or moods [31]. One thing to note here is that affect is a higher mental function. Hence, people can feel that they are communicating with other people at the other end even if they are conscious that they are interacting with computers [27].

In terms of the operational definition of social presence, as discussed above, Champness' [5] scales of social contact are recommended [8, 33]. Champness reported that this factor is almost the same as observed in the research conducted in the U.S.A. Through factor analysis Champness identified following eight items (p. 24):

1. "One can easily assess the other people's reactions to what has been said."
2. "It provides a great sense of realism."
3. "One gets a good 'feel' for people the other end."
4. "It was just as though we were all in the same room."
5. "One does not get a good enough idea of how people at the other end are reacting."
6. "It isn't at all like holding a face-to-face meeting."
7. "People the other end do not seem 'real'."
8. "One gets no impression of personal contact with the people at the other end."

Beside, Lombard and Snyder-Duch's [21] items e.g. "It seemed like we were interacting!" "It felt like we were all together there!" and "It (a computer) seemed like a person!" also reflect the conceptual definition of social presence.

The other measure of socio-emotional interaction is the attitude toward the medium. As Lombard [20] classifies it into 'social richness of the medium,' this measurement is related to user's socio-emotional responses to the communication media. Widely used items include 'personal-impersonal,' 'sociable-unsociable,' 'warm-cold,' and 'sensitive-insensitive' [5, 33]. However, as this measurement assesses overall affective evaluation or

attitude, more various affective words can be utilised. For example, Champness [5] found that 'good/bad,' 'enjoyable/unenjoyable,' 'satisfying/frustrating,' and 'important/unimportant' were the same factor. More generally, popularly adopted items for the attitude toward the object such as 'like/dislike', 'favourable/unfavourable', and 'pleasant/unpleasant' can be good sources for the measurement.

4. DISCUSSION

Overall, we identified two dimensions of social interaction, namely task and socio-emotional interaction. While task-related interaction has long been tested and developed, socio-emotional interaction is still underdeveloped. Through a review of literature, we find that there are two methods of measuring an affective dimension of social interaction in WMC: (1) social presence, and (2) attitudes toward the medium (e.g. a Web site). The former probes specific or descriptive feelings of users, while the latter indicates general feelings. Amongst these, social presence is more preferable in that it better explains the question 'why' ultimate outcomes have resulted from communication [37]. In addition, Champness [5] and De Greef and Ijsselsteijn [8] identified that both measures are correlated. The social presence seems to be a precedent of the attitude toward the Web site.

This paper postulates that the identification of two dimensions of social interaction gives a new insight into theories of human communication. Traditionally, communication is defined as the transfer of information from a sender to a receiver [e.g. 32]. Accordingly, the concern of a sender is to deliver messages accurately. Effectiveness, efficiency, and functionality are frequently used concept for assessing performance of communication. Especially, researchers have focussed on identifying the cognitive or rational part of human minds. However, the traditional information processing model has been criticized for ignoring the affective side of a higher mental function [26]. Many scholars [e.g. 1, 18, 38, 40] warn that without understanding an affective attitude of subjects, we cannot fully understand consumer behaviour. From a social psychological point of view, attitude has three components, that is, affect, cognition, and conation and they occur at the same time [35]. Hence, to understand human activity we need to examine all three components simultaneously.

Alternatively, WMC emphasises both exchange of information and emotional responses, which cause human behaviour. The dual functions of WMC are reflected in two dimensions of social interaction (affective and cognitive), which will ultimately serve for explaining the conative or behavioural component. This also implies that WMC mainly focusses on identifying user's responses to messages (or media) rather than messages (or media) themselves. Therefore, it can be concluded that this trend should be reflected in future studies of WMC. We believe that ultimately this study would be a sound foundation of building models and assessing communication outcomes.

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