Consequences of IM on Presence Awareness and Interruptions

Jesus Carmona
Texas A&M International University, USA

INTRODUCTION

Technology has changed the way we communicate in the workplace; new and improved computer-mediated communication tools are available for our use, and media choice has become an issue (Cameron & Webster, 2005). Nowadays it is hard to decide what communication tool to use or how we convey messages when using certain media (Trevino, Daft, & Lengel, 1990).

Instant messaging (IM) is a computer-mediated tool that is used to send and receive text messages in a synchronous manner using the Internet. IM has become a common channel of communication between family members and friends (Goldsborough, 2001); almost 53 million adult Americans trade instant messages, and 24% of them swap IM more frequently than e-mail (Shiu & Lenhart, 2004). After seeing this tool's usefulness, managers are beginning to introduce it in the workplace as an informal way to communicate; at the same time, IM seems to bring unintended (though not necessarily negative) consequences like presence awareness (Cameron & Webster, 2005) and interruptions (Rennecker & Godwin, 2005).

Various theoretical frameworks have been used to study IM, mostly in the fields of communications and electronic monitoring (Cameron & Webster, 2005), many of which utilize qualitative methods. Very few empirical studies are published in this area, and those available are written by IM vendors or IM developers using colleagues as their main subjects of study (Cameron & Webster, 2005).

This article studies IM's effects on interruptions and presence awareness, as well as the effect presence awareness has on interruptions. For the statistical analysis a subset of 111 elements of the February 2004 PEW Internet and American Life surveys dataset was used as a sample. PLS Graph software was used to create the structural model and test the relationships between the constructs Interruptions (INT), Presence Awareness (AWA), and use of IM in the workplace (IMW).

BACKGROUND AND HYPOTHESES

The main tool used by managers to do their work is communication. Theories in the communications field suggest that media is as important as the conveyance of the message (Trevino et al., 1990). In other words, the content of the message is as important as the medium used to deliver it. The Symbolic Interactionist perspective has been utilized to explain symbolic cues conveyed by different media; for example, an official e-mail may imply formality while the use of IM may convey urgency but informality (Trevino et al., 1990).

Presence awareness is the ability to see who is online at specific times. Most IM systems display a list of users connected to the network (or Internet, depending on the IM software). This list helps conversation initiators judge if recipients are available for conversation (Nardi, Whittaker, & Bradner, 2000); most IM systems are able to post an "away" or "busy" message to let others know the IM user's status, reducing at the same time the interruption level by allowing recipients to negotiate availability. To compensate for privacy concerns, IM systems are also capable of blocking users from the list in order to "hide" from them; this gives the user complete control over who sees him/her as "online" (Cameron & Webster, 2005). IM users sometimes send short messages (e.g., "hello?") to initiate a conversation, and it is up to the recipient to either answer or wait for a more appropriate time. Privacy concerns are important for people, and even though presence awareness can be considered invasive, most users found the IM monitoring system less invasive than video cameras (Zweig & Webster, 2002).

Another important factor in presence awareness is the sense of social connection; experiencing connection with other people makes users feel socially engaged and gives them the confidence to know that somebody is available (Nardi et al., 2000). In general, presence awareness is an IM consequence that both the initiator and the recipient can see as beneficial because it gives

both the ability to consent communication without the hassle of face-to-face negotiation. From the previous discussion, the following hypothesis can be inferred:

- **H1:** The use of IM in the workplace will have a positive effect on presence awareness.

O'Conaill and Frohlich (1995) define interruption as "a synchronous interaction which is not initiated by the recipient, is unscheduled, and results in the recipient discontinuing their current activity" (p. 262). Interruption does not necessarily mean disruption, but even the notification of an incoming message can cause interruption, which may or may not negatively affect performance (Cutrell, Czerwinski, & Horvitz, 2001). It has been hypothesized that interruptions derail the flow of activities directed toward accomplishing a task and delays can contribute to work disorganization when a worker is unable to move forward with a task due to insufficient information (Rennecker & Godwin, 2005). Consequently one can expect users, especially recipients, to perceive IM as interruptive. This leads to a second hypothesis:

- **H2:** The use of IM in the workplace will have a positive effect on interruptions.

Managers introduce the use of IM in the workplace as means to communicate; even though IM is considered informal, the sense of urgency has made IM the medium of choice when information is needed to complete a task (Nardi et al., 2000). One way in which a task can be delayed is by not having the information needed; a common way to obtain this information from a co-

worker or supervisor is to contact the person using either an asynchronous medium (e.g., e-mail) or a synchronous medium (face-to-face, telephone, IM) and each communication method would have its own advantages and disadvantages. With the former method, more delay can be experienced because of the nature of the medium. If the latter method is used and if the recipient is available, a faster response can be guaranteed (Rennecker & Godwin, 2005). IM is a method of choice because thanks to the presence awareness, a negotiation is possible between the initiator and the respondent. First, by taking a quick look at the "online" list a person can tell if a user is available; second, from the status on the list, one can determine if the user is "busy" or "away"; and third, a quick "are you there?" message can ensure that the user is available and ready to communicate (Nardi et al., 2000). This discussion leads to a third hypothesis:

- **H3:** Presence awareness will have no effect on interruptions

Since the hypotheses refer to a set of causal links involving three constructs, a representation can be provided in the form of a structural model (see Figure 1).

RESEARCH METHOD

The method employed for data analysis in this study was partial least squares (PLS), an alternative structural equation modeling technique (Chin, 1998). PLS was implemented through the PLS-Graph software V.03.00 (Chin, Marcolin, & Newsted, 1996; Chin, 1998). A sub-

Figure 1. Hypothetical model and hypotheses
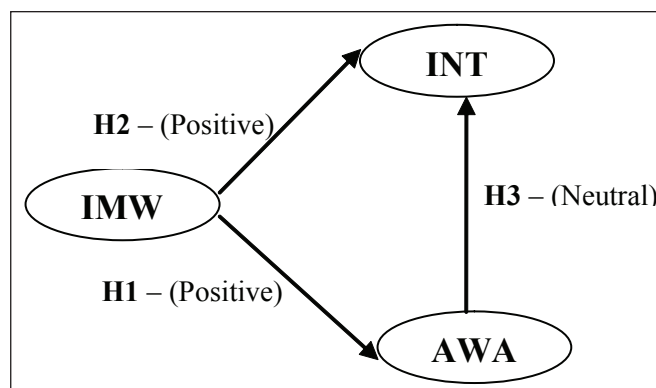
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