

The effectiveness of a teambuilding activity, as carried out through a computer mediated communication medium: a comparative study.

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Abstract

The study compared the effectiveness of a teambuilding activity, as carried out through a computer mediated communication medium (CMC) to that of a similar activity as carried out through a face-to-face medium (FTF). It used a triangulatory method. A sample of 25 students was gathered and randomly assigned to six different groups making up three different conditions. The first condition formed a “placebo” group. They were not allowed to interact throughout the teambuilder. The second group formed the FTF condition and was allowed to interact in any way it liked. The third group was the CMC condition. This group was not allowed to talk to each other, but they were allowed to interact with each other over a CMC medium called Webct. Results are discussed. Directions for future research are suggested, and implications of the findings are raised.

Keywords: Social Presence Theory, Media-richness Theory, Computer-mediated Communication, Quasi-synchronous communication

1. Introduction

CMC ranges from e-mail within an office to the World Wide Web with its applications that make synchronous, asynchronous and quasi synchronous communication possible (Bishop & Levine, 1999). CMC has changed the world of work in some very significant ways. For example, CMC allows employees to interact with their clients and supervisors without being in the same location (Bishop & Levine, 1999).

During the past twenty years, many researchers have investigated and theorised about the causes for the process and performance differences that may be found between FTF and CMC groups (i.e.: Bernard, 2000; Barak & Wander-Schwartz, 2001; Postmes, Spears & Lea, 1998; Hedlund, Ilgen, & Hollenbeck, 1998). Researchers have suggested that CMC groups may promote different communicative behaviours to FTF groups in certain circumstances because CMC environments are subjected to permanent limitations that produce a narrowing of the communication bandwidth, and therefore less information exchange (Bernard, 2000).

1.1 Social Presence and Media Richness

The most obvious and best way to describe the difference between FTF and CMC is through looking at Social Presence Theory and Media-Richness Theory. Social Presence Theory views communication along a one-dimensional continuum of social presence (Fang, 1998). It posits that the reduction of channels available within a communication medium produces less focus of attention by the user on other interactants. Thus, the fewer channels and codes available within a medium, the less attention will be paid by users to the presence of other social participants (Jaffe, Young & Huang, 2001). Further, Fang (1998) posits that media that are high in social presence (such as FTF) permit the transmission of rich information, since they can provide multiple channels of communication for verbal, nonverbal and visual cues. The more ambiguous the task, the more social presence is needed (Fang, 1998).

The central proposition of media richness theory hinges on the belief that lean media, such as CMC, inhibit the sending and receiving of nonverbal cues. The theory asserts that four factors influence this media richness: the ability of the medium to transmit multiple cues (i.e.: verbal, inflection, gestures), immediacy of feedback, language variety, and personal focus of the medium (Fulk & Boyd, 1991). Instead of making predictions about message content or outcomes based on the perceived or actual ability of the media to translate social presence cues, media

richness theory makes predictions about media choice. The assumption of media richness is that certain media will be chosen based on the degree the media matches task requirements

(www.u.arizona.edu/ic/polis/course991/comm_209/CMCTheory.html).

1.2 Quasi Synchronous Communication

Garcia and Jacobs (1999) attempted to understand the turn-taking system in quasi-synchronous CMC. They define “quasi-synchronous” communication as allowing two or more participants to communicate simultaneously by typing messages that they then post in a group-posting box. This type of communication is quasi-synchronous because, even though the posted messages are available synchronously to participants, the message production process is available only to the person composing the message. Thus the process of message transmission is not synchronous with message production. Further, this type of medium is text based, and participants read each other’s messages instead of listening to them (Garcia & Jacobs). They discovered that the turn taking system that exists through this type of medium is substantially different from turn-taking in FTF. This results in a multidimensional sequential pattern, rather than a linear sequential pattern, causing the conversations to appear disjointed. That is, in quasi-synchronous communication there are multiple, concurrent “speaker” selection options, as apposed to the turn-taking rules for synchronous, FTF conversation. For example, people using quasi-synchronous CMC can respond to messages that were posted before the most recently posted message. Further, the conversation can be constructed in a non-linear fashion, with participants having access to all previously posted messages as referents, allowing people to conduct two or more separate streams of conversation simultaneously (Garcia & Jacobs, 1999). Garcia and Jacobs (1999) suggest that past experience and learned knowledge have an important role to play in allowing one to be able to communicate effectively through a quasi-synchronous CMC.

According to Russ-Eft, Preskill and Sleezer (1997), the demands of current organisational tasks frequently require capabilities and resources that are beyond the means of any one individual. In addition, companies are increasingly organising

work so that tasks can be accomplished by teams. These teams range from the traditional FTF groups, to CMC groups. Further, teambuilding interventions are said to help groups of people improve their effectiveness in working together by confronting and resolving problems, as they help remove barriers to effective group functioning and help participants better understand and utilise the group processes associated with effective group behaviour (Boss & McConkie, 1981).

McCleron and Swanson (1995), when examining the effects of using a group decision support system (GDSS) and outside facilitation support, found results that suggest that teambuilding is not very effective when carried out through a CMC type medium. Despite this, it was felt that the current study might find results contradictory to those described by McCleron and Swanson (1995), since it uses a combination of quantitative and qualitative methods in order to better understand how effective team functioning is achieved by a CMC group, when compared to a FTF group.

2. Method

2.1 Theoretical paradigm and measuring Instrument

This study used a triangulatory technique. That is, the quantitative technique used was a closed-ended, Likert-type scale questionnaire, in the form of the Team Effectiveness Critique Scale (Alexander, 1995). This scale measures the effectiveness of groups on a seven point, Likert type scale, and involves nine factors that make up an effective team. In the present study, the Team Effectiveness Critique scale had a pretest reliability coefficient of .78, and a posttest reliability coefficient of .79, thus suggesting that the scale is reliable, and the results found can be used with confidence. The qualitative technique used was an open-ended questionnaire, as well as transcribed audiotapes recorded in focus groups following each group session conducted, and transcribed by the researcher.

2.2 Sample

The sample was gathered using a non-probability, volunteer sampling technique (Neuman, 2000). Due to the availability of equipment needed for this research (such as computers with internet access), and the comparatively large sampling options available, the research was conducted amongst university students found at the University of The Witwatersrand. Four different classes were approached (one second year Engineering class, one Second year Computer science class, one third year Psychology class, and one second year Psychology class). The reason for choosing these classes is that both the Computer Science and Engineering students use computers in their everyday studies, thus ensuring a degree of computer literacy. The Psychology classes were chosen towards the end of the study to increase the sample size when an unusually large dropout rate reduced the sample to an unacceptably small size.

2.3 Procedure

The sample of 25 was randomly assigned to one of six groups. The groups were defined as follows: two were experimental groups, two contrast groups and two placebo groups. At each session, one of each group was simultaneously given the same team-building exercise (developed by the researcher) to complete. The teambuilder was designed to be vague, thus allowing team members to use their ingenuity to perform it effectively, as well as to allow room for debate. Each group was given one and a half hours to complete the task.

The individuals in the placebo group were not allowed to interact with each other, and had to perform the activity individually. The contrast FTF group was allowed to communicate and interact in any way they pleased. The experimental CMC group were not allowed to talk or to use other nonverbal communication, such as hand signals or facial expressions, and had to interact using a CMC medium, in the form of an internet-based, computer software programme. This was in the form of an online learning facility that is designed for online university courses. The researcher designed a course, with a homepage linking subjects to two other pages. The first

was the teambuilder itself, while the second was a quasi-synchronous chat room. The teambuilding activity was designed by the researcher, and was intentionally designed to be vague, thus allowing team members to use their ingenuity to perform it effectively, and to allow room for debate to exist. The activity involved forming a business plan for some type of on-line business, and gave participants certain key areas to focus on (such as what the business would do, how many employees would be needed, how the organisation would be organised, and whether a hierarchical structure would be used)

3. Results and Discussion

3.1 Quantitative Results

Wilcoxon signed rank test was used on the data gathered, due to the small sample size of twenty-five. In addition to this, thematic content analysis was used on the information recorded in the focus groups, and transcribed from the follow-up questionnaires. The pre-test, post-test comparison on the placebo group found no significant differences between any aspect of an effective team ($Z = -1.1$, $P = .27$), as defined by the Team Effectiveness critique scale (Alexander, 1994). This was the expected result as the group had no form of communication. This is important as the purpose of this group was to check the validity and reliability of the Team Effectiveness Critique Scale (Alexander, 1995).

The FTF group managed to show an improvement on eight of the nine components of an effective team (from the pre-test to the post-test), in accordance with Alexander (1995). The only aspect they did not form was **full participation, and the sharing of leadership roles** ($Z = -1.64$, $P = .10$). There was also a significant result on the overall pretest and posttest score ($Z = -2.67$, $P = .01$).

In contrast, the CMC group showed an improvement on four of Alexander's (1994) nine components of an effective team (from the pre-test to the post-test) These were **agreed upon goals and objectives** ($Z = -2.21$, $P = .03$), **the full recognition and utilization of member resources** ($Z = -2.13$, $P = .03$), **effective**

procedures to guide team functioning ($Z = -1.98$, $P = .04$), and **open and participative communication** ($Z = -2.05$, $P = .04$). There was also a statistically significant result on the overall pretest and posttest score ($Z = -2.31$, $P = .02$).

3.2 *Qualitative Results*

As expected, and in congruence with the quantitative results, the placebo group did not develop any of the nine components essential for a team to be effective in its functioning.

The FTF group appeared to develop eight of the nine components essential for a team to be effective in its functioning. Interestingly, the one component they felt they did not develop was **creativity and experimentation**. This might have been due to the generally short amount of time that the group spend working together, or it might have been due to the teambuilding activity itself. The main themes expressed by the FTF group were that the medium was easy and natural to use, was free and open, involved forms of communication other than just language (such as body language and facial expressions), and was therefore complex in nature and very rich. These trends can be linked to the amount of physical presence located in the FTF medium. This includes the fact that the subjects making up this team group could see, hear each other directly, and could exchange tactic signs that play an important role in resolving ambiguities and establishing social control.

The CMC group did indeed develop into a reasonably effective team, but not to the same level as the FTF group. This is because it appears that the CMC group developed six of the nine components of an effective team, as defined by Alexander (1995) (namely **goals and objectives, utilization of member resources, leadership, interpersonal communication, creativity, and evaluation of team functioning**).

In addition, the CMC group regularly made comments that demonstrated that they found the medium quite restrictive. Much of the qualitative information obtained for the CMC group centred on the difficulty found with using the quasi-

synchronous medium that was present in the Webct chat room. The other major issue that emerged in the CMC group was that surrounding trust. Almost all the subjects felt as if trust could never be established through a medium that does not allow one to see with whom one is interacting. This was attributed to the fact that nothing said by the person with whom one was interacting could be confirmed (not even basic elements such as gender and race).

4. Directions for future research

Future research should allocate more time to the completion of the task for each group. Another suggestion would be to allow the CMC group to meet on a separate day to train in the CMC medium before being given the actual task to complete. Alternatively, one could run a longitudinal study, in which each group meets on several occasions. Finally, the groups in future research should be recorded by videotape, so that their unconscious and non-verbal communications could be assessed. In terms of the CMC group, the written conversation could be examined to see if the language used, and the style of communication emanating out of it are different to the oral communication of the FTF group.

5. Conclusion

The above study set out to compare the effectiveness of a teambuilding activity, as carried out through a computer mediated communication medium to that of a similar activity as carried out by a face-to-face medium. It became apparent in the study that, while the teambuilder did develop some degree of team effectiveness through the CMC medium, the teambuilder was not as effective through this medium as it was when carried out through the FTF medium. It further became apparent that the CMC medium brings with it different and complex sets of issues and themes (such as the difficulty in building trust). This leads the researcher to conclude that it is possible that one might need to view a CMC-based team's effectiveness differently, and according to different criteria, to that of a traditional team.

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