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HOW DO VIRTUAL TEAMS WORK- A SOCIAL RELATIONSHIP MODEL BY SEM

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ABSTRACT

Virtual teams have brought the need for organizations to improve the performance of virtual teams. Among these key issues to be successful, social dimensions have been catching researchers and managers' attentions. Hence, this study derives a preliminary social relationship model from Powell et al's (2004) virtual team framework and conduct an experiment to validate it by SEM. The results reveal: (1) Communication has a positive impact on relationship building; (2) Relationship building has a positive impact on cohesion; (3) Relationship building has a positive impact on trust; (4) cohesion and trust have positive impacts on performance.

Keywords: Virtual teams, Social relationships, Model, SEM

INTRODUCTION

[3] found that past research on virtual teams paid too much attention to the development of advanced technological environments instead of the social and psychological dimensions. Although a few studies have investigated the social aspect of virtual teams, such as [9]. However, with the complexity of human activities over the Internet, there is a need for exploring the social dimensions of virtual teams in depth. From the review of past studies, it is found that social relationship is problematic within virtual teams. [1] found that cohesion among virtual team members is weak due to some members may attempt to contribute nothing and let others carry their workload. In addition, building trust within virtual teams is tough [5]. However, some scholars were aware of the importance of social relationships in virtual teams and developed theories to formulate it. Such as hyperpersonal communication theory [16] and Social Information Processing perspective [17] asserted that a virtual team, while deficient in face-to-face meetings, is able to adapt itself to this environment and achieve high levels of performance if enough time is given. Thus, the intent of this study is to build a model to explore the social relationships and their effects on performance and satisfaction in virtual teams.

FORMING THE PRELIMINARY FRAMEWORK

[11] reviewed 43 articles (1988~2002) about virtual teams and proposed a detailed framework of virtual teams. This framework has a solid theoretical base and it indicates the potential variables in both social and task dimensions which affecting the performance and satisfaction of virtual teams. However it only displays a general idea about the virtual teams and fails to further explore the variables' effects toward the performance and satisfaction, and the interactions between the variables. The, it can be an excellent starting point for this study. To abstract the social dimension of Powell et al's framework the preliminary framework is formed in Figure 1.

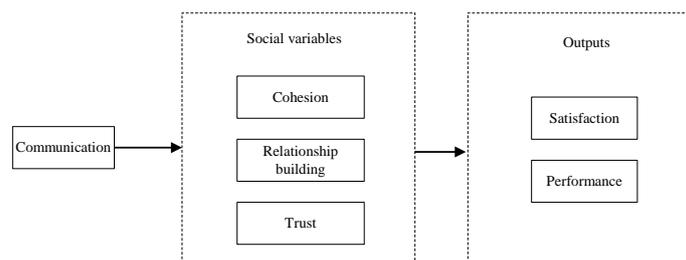


Figure 1 Preliminary framework of this study

LITERATURE REVIEW

In this section, all variables in the preliminary framework are reviewed.

Communication: Although some researchers argued that communication in electronic environment has decreased due to the lack of speech acknowledgements (e.g., “hum?” “Uh-hmm”) and social greetings [12], there is no doubt that electronic communication consumes more time and conversation contexts. Others suggest that a problem-solving task is not suitable for electronic communication, even if the task is low in complexity [15], which implies that the efficiency of electronic communication in problem-solving tasks is lower than FTF communication. **Relationship building:** According to TIP theory [8], there are three functions that are performed by group members: production, member support and group well-being. Members support and group well-being is related directly to relationship development in virtual teams, which suggests that since members spend more time on goal and task oriented activities and it is more difficult for VT to engage in developing relationships. Thus, the lack of relationship development may result in frustrating team members. **Cohesion:** [2] developed a subjective conceptual model of cohesion, which proposed that the perceptions of cohesion of group members are important for

the members' behaviour. [13] tested the model and GEQ in 740 high school varsity athletes to determine the degree of factorial invariance across gender (426 males, 314 females) and across type of sport teams. Trust: According to [22], better use of personal relationship is associated with better quality and efficiency. [4] states that strong social interaction in a team contributes to better performance and the most important factor to create excellent interaction among team members is trust. **Performance and Satisfaction:** The measurements of performance and satisfaction in virtual teams are diverse. This study analyzed the approaches of evaluating performance and satisfaction of ten empirical studies from 1994 that focused on virtual teams and found that the methods of appraising performance can be categorised into three types: grader/ranking, discussion board/videotape, questionnaires. Graders are engaged in scoring the outcome (e.g., group report). Ranking has two sources: individual/group ranking [14] and experts' ranking [14]. Individual/group ranking is done by each of members. Experts' ranking is done by selected experts (e.g., lecturers). The two mainstreams of satisfaction are "satisfaction with the process" and "satisfaction with the outcomes".

HYPOTHESIZED MODEL BUILDING

CMC has also been found to promote interpersonal relationships in a virtual environment [10]. Relationship building can strengthen feelings of inclusiveness or a sense of belonging to teams and further foster cohesion [11]. Cohesion has been considered to be the most important small group variable [7]. It has been associated with better performance and satisfaction [10]. In addition, relationship building is connected to trust [6] and trust is regarded as one of the key elements to performance [18]. These studies depict a potential path from communication to relationships, relationship building to cohesion, relationship building to trust, trust to performance, and cohesion to performance. However, the connections between relationship building and cohesion are ambiguous. To aggregate these studies, this study proposes two models shown in Figure 2:

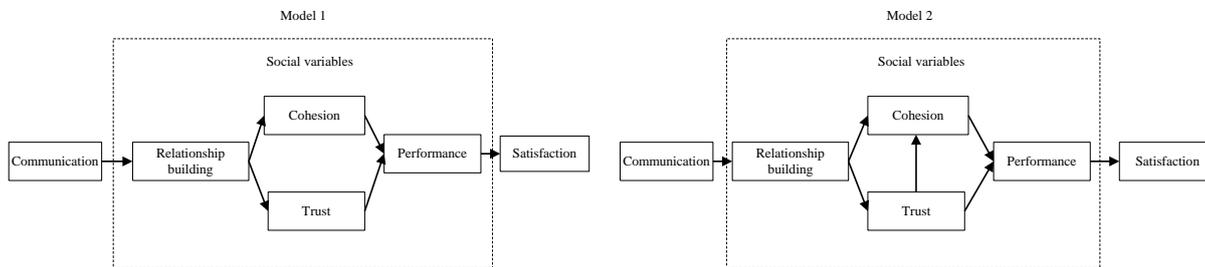


Figure 2 Proposed model 1 and 2

RESEARCH METHODOLOGY

54 groups, which comprised of 220 business students, were pre-assigned and the discussion boards, built in a Networked Learning Environment Courseware System called Blackboard, were created for each team. Students were grouped with different classes to avoid that they meet each other and they were told that the discussion boards in Blackboard is the only permitted communication approach. Students discussed and exchanged files to finish the assignments posted on the discussion board and submitted reports. The, hard copy questionnaires were distributed in the lectures and tutorials. 200 validated questionnaires were collected, giving the return rate of 90%.

MODEL TESTING

Figure 3 show the results of applying SEM by LISREL 8.72 on the proposed model 1 and 2.

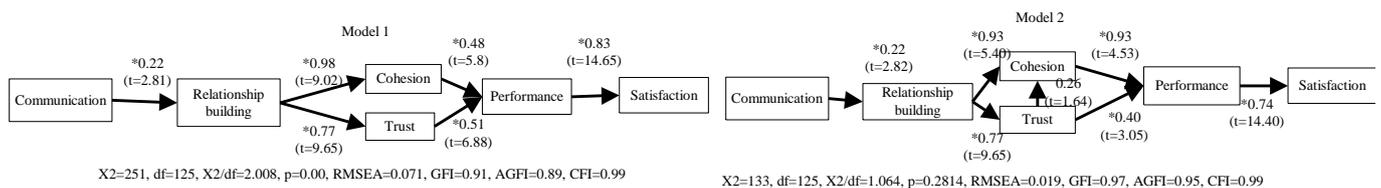


Figure 3 The results of applying SEM on model 1 and 2

By comparing the criteria of the two models, it can be found that model 2 is superior to model 1. Thus, Model 2 is selected as the social model of virtual teams.

DISCUSSION

By observing model 2, it can be found: (1) Communication has a positive impact on relationship building. This finding is not so surprising and is corresponding to the hyperpersonal communication theory [16] that virtual team members are still able to build social relationships in a virtual environment. (2) Relationship building has a strong and positive impact on cohesion. This finding also makes sense. If virtual team members have good social relationships, they would feel more cohesive and work like a team. (3) Relationship building has a strong and positive impact on trust. If virtual team members have good social relationships, it promotes the development of trust. (4) Although the path (trust to cohesion) is insignificant, with this relationship, the model fitness of model 2 is far better than model 1. This implies the relationship between the two variables is meaningful for the social structure. (5) Cohesion has a strong and positive impact on performance. It implies that if virtual team members feel cohesive and work like a team, the performance would be higher. (6) Trust has a positive impact on

performance. (7) Performance has a positive impact on satisfaction. This finding implies that higher performance teams have higher degree of satisfaction. (8) By observing the paths between the three social variables (relationship building, cohesion and trust), relationship building and trust could be mediators for cohesion to affect the performance. This means that the degree of cohesion's impact on performance would be influenced by relationship building and trust.

CONCLUSIONS

This study contributes a new framework of social relationships for virtual teams, which derived from Powell et al's [11] framework with intact literature base. The framework reveals the relationships between variables and gives a new view toward the virtual team structure. Also, these findings confirm the importance of the social relationships toward the performance and satisfaction of virtual teams. This could promote the further research to improve the performance and satisfaction of virtual teams.

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