Designing Groupware that Fosters Social Capital Creation: Can Facebook Support Global Virtual Team?

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ABSTRACT

Prior research on groupware tends to focus on understanding the task processes and how technology can be deployed to facilitate the task completion. However, the socio-emotional processes among Global Virtual Team (GVT) members who use the groupware have not been given due consideration. In this paper, we propose a conceptual framework explaining how the various social capital dimensions of social interaction tie, trust, reciprocity, identification and shared language can enhance the socio-emotional processes leading to improved GVT performance and satisfaction. The antecedent factors leading to the creation of the social capital are groupware features that facilitate social awareness, social presence, social identity and mutual knowledge. We then make a case for the viability of using Social Networking Sites (SNSs) such as Facebook as groupware and identify specific Facebook features that fit into our conceptual framework. A methodology is also proposed for future research to validate the conceptual framework.

Keywords

Groupware, global virtual team, socio-emotional processes, social capital.

INTRODUCTION

Global Virtual Team (GVT) commonly involves the use of information and communication technologies (ICT) to gather individuals who are dispersed geographically, organizationally and/or temporally to accomplish one or more organizational tasks (Powell, Piccoli and Ives, 2004). Collaboration among GVT members is therefore an inherently complex process. For instance, GVT members are constrained to using computer-mediated communication (CMC) that affords low social presence (Walther, 1992). Consequently, it is difficult for GVT members to know one another and to generate and exchange ideas (Rice, 1993). Groupware that contains a repertoire of CMC tools is therefore capable of supporting GVT by easing the processes of communication, deliberation and information access (Huang, Wei, Watson and Tan, 2002).

However, the effectiveness of a GVT does not only depend on the various task processes. Equally important are the underlying socio-emotional processes that include relationship building, cohesion and trust formation (Powell et al., 2004). Unfortunately, these are often found lacking in GVTs (Solomon, 2001) and can lead to negative consequences. The absence of trust, commitment and prior working experiences among GVT members is often associated with poor communication effectiveness and low work productivity (Cascio, 2000; Jarvenpaa and Leidner, 1999). Despite this, the extant literature on groupware has largely focused on task processes and the impact of technology use (see DeSanctis and Gallupe, 1987; Zigurs and Buckland, 1998). It is thus timely to advance our understanding of groupware to provide better support for the various socio-emotional processes.

This paper proposes a conceptual framework that outlines how groupware features that lead to the creation of social capital (Nahapiet and Ghoshal, 1998) can enhance the socio-emotional processes. In particular, we examine how pertinent features in SNSs such as Facebook (http://www.facebook.com) could be usefully synergized with existing groupware features to enhance relationship building, cohesion and trust formation. Although groupware is an organizational-level tool, SNSs have
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been known to facilitate the formation of social capital that leads to pro-social behaviors such as collective actions among dispersed individuals (Ellison, Steinfield and Lampe, 2007). These qualities are certainly applicable within the organizational context.

THEORETICAL BACKGROUND

Groupware and its variants such as group support system (GSS) and group decision support system (GDSS) have received significant research attention over the last two decades (see Table 1). Numerous studies have examined issues ranging from exploring the general design problems of groupware (Grudin, 1994) to specific emphasis on using the appropriate groupware features for specific tasks (DeSanctis and Gallupe, 1987; Ellis, Gibbs and Rein, 1991; Huang et al., 2002; Zigurs and Buckland, 1998). These issues share a similar commonality, i.e., the effect of using the groupware depends on how it matches with the task processes.

However, recognizing the importance of understanding the formation and evolvement of teams, researchers have also investigated the impact of various structural features in GDSS that could affect team conflict and cohesion (Chidambaram, Bostrom and Wynne, 1990). More specifically, other researchers have sought to understand how different groupware features can enhance the workspace awareness of team members, which could lead to enhanced remote collaboration performance (Gutwin and Greenberg, 2001). Nevertheless, these research efforts are still inadequate in providing a holistic view of the groupware features required to support the socio-emotional processes identified by Powell and her colleagues (2004).

### Table 1. Selected Literature Review of Groupware

<table>
<thead>
<tr>
<th>Authors and Year</th>
<th>Domain</th>
<th>Type</th>
<th>Summary of Major Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chidambaram et al. (1990)</td>
<td>GDSS</td>
<td>Empirical</td>
<td>Examines the longitudinal effects of using GDSS. Use of GDSS improves conflict management and increase group cohesiveness.</td>
</tr>
<tr>
<td>DeSanctis and Gallupe (1987)</td>
<td>GDSS</td>
<td>Review and Conceptual</td>
<td>Proposes a classification framework for GDSS research focusing on three dimensions of task type, member proximity and group size.</td>
</tr>
<tr>
<td>Ellis et al. (1991)</td>
<td>Groupware</td>
<td>Review</td>
<td>Reviews groupware design along time space and application-level taxonomies. Different types of groupware and features should be used for different task.</td>
</tr>
<tr>
<td>Grudin (1994)</td>
<td>Groupware</td>
<td>Review</td>
<td>Identifies broad spectrum of eight challenges for groupware developers ranging from benefits perception, needs to include features supporting individual activity and those infrequently to groupware adoption.</td>
</tr>
<tr>
<td>Gutwin and Greenberg (2001)</td>
<td>Groupware</td>
<td>Conceptual</td>
<td>Proposes a framework for designing groupware features that support workspace awareness, i.e., real time understanding of another person’s interaction with a shared workspace.</td>
</tr>
<tr>
<td>Huang et al. (2002)</td>
<td>GSS</td>
<td>Empirical</td>
<td>Examines the impact of having embedded goal-setting structure in GSS in virtual team building and its effectiveness.</td>
</tr>
<tr>
<td>Zigurs and Buckland (1998)</td>
<td>GSS</td>
<td>Theory</td>
<td>Proposes a task/technology fit model that delineates the degree of communication support, process structuring and information processing features that a groupware should provide for different task types.</td>
</tr>
</tbody>
</table>

Moreover, any discussion on the use of groupware to support GVT would be incomplete without considering the types of computer-supported cooperative work (CSCW) that are applicable for a specific groupware. In general, CSCW encompasses work coordination across geographical and time differences (Mark, 2002; Wellman, Salaff, Dimitrova, Garton, Gulia and Haythornthwaite, 1996). CSCW can also involve collaborative work such as co-editing of documents as well as knowledge sharing (Markus, 2001). Thus, even if selected groupware features are able to support the various socio-emotional processes, it is still necessary to take into account the limitation on the types of CSCW that can be supported by the groupware.

**Importance of Socio-emotional Processes**

Addressing the knowledge gap on groupware features support of socio-emotional processes is important for several reasons. Prior researchers have noted that it is critical for GVT to engage in rapid relational development by mean of cultivating
shared understanding (Tan, Wei, Huang and Ng, 2000). On a similar note, Holton (2001) suggested that appropriate team building techniques can help to promote deep dialogue among GVT members, which in turn creates shared knowledge and a culture of collaboration. More importantly, Holton emphasizes the importance of trust among members to facilitate collaboration. The intense interactions resulting from the team building exercises should instill in members a sense of willingness to share ideas and discuss about conflicts.

In a separate study investigating the effectiveness of GDSS on collaborative learning, the author also highlighted the fact that collaborative learning is very much a social process that necessitates interpersonal and cooperative interactions (Alavi, 1994). While this study primarily refers to face-to-face collaborative learning, it does not imply that the social process will be of less important in a virtual learning environment.

In sum, the extent literature has postulated the importance of socio-emotional processes such as building relationship enhancing cohesion and increasing trust towards the effectiveness of GVT (Furst, Blackburn and Rosen, 1999; Powell et al., 2004). To the extent that the accumulation of social capital can bring about cooperation and collaboration among GVT members (Lipnack and Stamps, 1999), it is imperative to examine how social capital can enhance the various socio-emotional processes.

The Relevance of the Social Capital Notion

Social capital refers to the resources embedded within networks of human relationship and is crucial for knowledge exchange, an intimate process of GVT, to occur (Nahapiet and Ghoshal, 1998). Individuals' behavior is often a product of their social network. Through close social interactions, individuals are able to increase the depth, breadth, and efficiency of their mutual knowledge exchange (Bandura, 1989). Social capital can be segregated into three distinct dimensions (Nahapiet and Ghoshal, 1998).

First, the relational dimension is the kind of personal relationships people have developed with each other through a history of interactions, e.g., trust, reciprocity and identification. Trust can reduce transactional cost and enable social relations (Nooteboom, 2001) while concurrently encouraging individuals to share their knowledge (McEvily, Peronnne and Zaheer, 2003). Norm of reciprocity results in a sense of indebtedness among GVT members to the extent that they will reciprocate benefits received from one another (Shumaker and Brownell, 1984). This norm reassures GVT members that their resource contribution will be reciprocated and thereby ensuring continued active participation (Wasko and Faraj, 2005). A sense of collective identification increases an individual's sense of belonging and positive feeling toward a community, which will ultimately enhance one's willingness to help others (Nahapiet and Ghoshal, 1998).

Second, the cognitive dimension refers to those resources providing shared representation, and systems of meaning among parties, such as shared vision and goals (Nahapiet and Ghoshal, 1998). Clear organizational vision and goals engender a

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**Figure 1. Linking the Social Capital Dimensions to the Socio-emotional Processes**
sense of involvement and contribution among employees (Tsai and Ghoshal, 1998). Members who share a vision will be more likely to become partners sharing or exchanging resources.

Finally, structural dimension is the overall pattern of connections between actors, e.g., network ties. Tie strength characterizes the closeness and interaction frequency of a relationship between two parties. Network ties provide access to resources and thus strong ties would reflect that people are more accessible and willing to exhibit sharing behaviors (Tsai and Ghoshal, 1998). In sum, the various dimensions of social capital have been found to facilitate the collective actions of resource sharing among employees in organization.

It is plausible to generalize these notions to collaborative organizational tasks among individual employees, e.g., GVTs, if we further consider how the adoption of community intranet can increase the networks of civic engagement and norms of generalized reciprocity, i.e. social capital, among residents of a community (Arnold, 2003). The social capital accumulated among residents helps to link residents and increased actual participation in local civic organizations. In many ways, creating social capital among GVT members can indeed enhance the socio-emotional processes as summarized in Figure 1.

**CONCEPTUAL FRAMEWORK AND PROPOSITIONS DEVELOPMENT**

Our conceptual framework (see Figure 2) focuses on delineating potential groupware features that exhibit specific characteristics for creating the various dimensions of social capital. The collective accumulation of social capital is then expected to enhance the socio-emotional processes thus leading to an improvement in GVT outcome. Grounded on established theories in the extant literature, a total of four groupware features are proposed.

![Figure 2. Conceptual Framework for Groupware Features to Create Social Capital](image)

Although prior studies have proposed several other features that could lead to the creation of social capital, they are not directly relevant or applicable to our present context of supporting GVT. For instance, a feature that explicates the reputation of users is useful in creating social capital for knowledge sharing (Huysman and Wulf, 2004; Wasko and Faraj, 2005). However, reputation is not relevant to our context since team members are assigned to the GVT for official work and must collaborate with other team members to complete the assigned tasks regardless of their reputation. Anonymity of GVT
members is also capable of negatively affecting tasks participation (Patterson, 2000). However, in a real-world organization, GVT members are more likely to identify themselves by their real name.

Social Awareness

Social contextual cues consist of various aspects of the physical environment and the nonverbal behavior of the actors that collectively determine the nature of the social situation in which the communication takes place (Walther, 1992). However, CMC is generally unable to convey social contextual cues compared to face-to-face settings (Sproull and Kiesler, 1986). Despite this, the social information processing perspective suggests that it is possible for the communicating actors to form personal relationships through CMC as long as relational messages can be verbalized and exchanged. In particular, over an extended period of time, the sustained exchange of social information can lead to the formation of relationships that are equally strong as face-to-face relationships, albeit requiring a longer time (Walther, 1992).

In order to facilitate the exchange of social information, it may be necessary to enhance the ability of an actor in understanding the activities of others and thus providing a context for one’s own activities, i.e., social awareness (Dourish and Bellotti, 1992). Social awareness requires the use of awareness cues in order to achieve the understanding of others’ activities (Andersen, Jorgensen, Kold and Skov, 2006). Common awareness cues include activity, status, relation and vicinity cues (Counts and Fellheimer, 2004). We posit that when GVT members are socially aware of one another’s activities, they should be more inclined towards trusting that their partners are contributing equally towards the completion of the assigned tasks.

$P1a$: Groupware features supporting social awareness positively leads to trust.

$P1b$: Groupware features supporting social awareness positively leads to reciprocity.

Social Presence

Social presence refers to the perceived feeling that the other communication partners are jointly involved in the communicative interaction (Walther, 1992). CMC is thought to possess a low degree of social presence compared to face-to-face communication. Prior researchers, however, have demonstrated that it is possible to design websites in such a manner that induces higher perceived social presence in the users (Hassanein and Head, 2007). Specifically, socially-rich text or descriptions aiming at evoking positive emotions and socially-rich pictures or products that are shown to be worn by people in emotional, dynamic settings can lead to high perceived social presence. Higher perceived social presence can then lead to perceived usefulness, trust and enjoyment in the website (Hassanein and Head, 2007). Similar to social awareness, when GVT members perceive each other as being involved in solving the organizational tasks as if they are face-to-face, trust and norm of reciprocity should develop.

$P2a$: Groupware features supporting social presence positively leads to trust.

$P2b$: Groupware features supporting social presence positively leads to reciprocity.

Social Identity

Social identity is commonly defined as an “individual’s knowledge that he belongs to certain social groups together with some emotional and value significance to him of this group membership” (Tajfel 1972, pp. 292). It is formed by the dual processes of recognizing the shared values of group members as well as differentiating these shared values from those of other groups (Hogg, Abrams, Otten and Hinkle, 2004).

A social identity for GVT is critical to the work collaboration success for several reasons. According to the social identity model of de-individuation (Lea and Spears, 1992), CMC can reduce the status effects observed in face-to-face teams, leading to de-individuation, i.e., a state of reduced self-awareness (Siegel, Dubrovsky, Kiesler and McGuire, 1986). When people feel anonymous in some respects of their personal selves in the presence of a highly salient social identity, they will conform strongly to identity-congruent norms (Postmes, Spears, Lee and Novak, 2005). Consequently, a collective identification should develop among the GVT members. A common feature for supporting the formation of group identity is a closed users group intended only for members of a specific GVT (Patterson, 2000).

$P3$: Groupware features supporting social identity positively leads to identification.
Mutual Knowledge

Mutual knowledge refers to the knowledge (e.g., information or experience about the conversation topic) that the communicating parties share in common and know they share (Krauss and Fussell, 1990). Mutual knowledge aids in the comprehension of the messages being communicated among the different parties leading to 1) better decision quality and productivity of the GVT; and 2) enhanced relationships among members (Cramton, 2001). It is thus an important characteristic that all members of a GVT should possess. In a CMC environment, mutual knowledge may be acquired through interactional dynamics and social categorization (Cramton, 2001). We posit that the accumulation of mutual knowledge can lead to a shared language reference among members. In the groupware context, a simple internet-style forum or newsgroup that can facilitate social conversations among GVT members can help to develop mutual knowledge.

**P4:** Groupware features supporting mutual knowledge positively leads to shared language.

Overall Effects

The intense exchange of social information with members of the GVT using groupware features exhibiting all of the above four characteristics over a sustained period should enhance the tie strength among members. This is in accordance with the social information processing notion (Walther, 1992).

**P5:** Groupware features supporting social awareness, social presence, social identity and mutual knowledge positively lead to social interaction tie.

Finally, various antecedent factors such as shared language, team building, team cohesiveness, communication among members, as well as coordination and commitment can improve the task performance of a GVT (Powell et al., 2004). Moreover, given sufficient time, the same set of factors can lead to the GVT members achieving the same level of satisfaction as a traditional face-to-face team (Powell et al., 2004).

**P6:** The social capital dimensions of social interaction tie, trust, reciprocity, identification, and shared language positively lead to improved virtual team performance and satisfaction.

MAKING A CASE FOR SOCIAL NETWORKING SITES SUCH AS FACEBOOK

Prior researchers have noted that social software such as SNSs differed in several important ways from groupware (Koch, 2008). For instances, groupware emphasizes group or collaborative communication and involves top-down enforced participation whereas social software emphasizes individual communication and voluntary participation. Despite this, it remains feasible to employ social software in support of organizational collaborative work (Koch, 2008; McAfee, 2006). This is because social software such as SNSs, e.g., Facebook, is capable of providing a generic communication platform to support traditional groupware-enabled organizational tasks (Koch, 2008). Moreover, social software has the added benefits of providing employees with intrinsic motivations such as job satisfaction, freedom and fun in collaborating with other employees. The remaining of this section examines Facebook and assesses its suitability as a groupware.

Facebook allows users to establish their own social profile for disclosing varying degree of personal information. Users can add other users as their friends and engage in a wide variety of social interactions (see Vandersluis, 2004). When used within the context of GVT, it could facilitate and strengthen the development of swift trust (Jarvenpaa and Leidner, 1999) through reinforcing the job role identity of GVT members. Moreover, the presence of multimodal communication tools, which include both synchronous and asynchronous media, provides the dual benefits of communication across time and space as well as concurrent communication sessions (Ellis et al., 1991). Coupled with the ability to add-on third party applications (e.g., discussions, files sharing, schedules and tasks, and polling), the degree of groupware support that Facebook can provide to GVT is immense. In fact, Facebook can support work coordination through the schedules and tasks application as well as various synchronous and asynchronous communication media. Internet forum-style discussion and file sharing applications can also facilitate knowledge sharing. However, collaborative work such as co-editing of documents may not be supported currently.

Moreover, traditional CSCW, which is typically managed by system administrators following strict organizational goals, could foster distrust between the employees and the managers (Wellman et al., 1996). On the contrary, since Facebook is outside the organization’s boundary, it could represent a more trusted neutral platform that the GVT members can use for interacting with each other socially.

A prior empirical study has shown that young people who join Facebook are largely motivated to keep strong ties with friends, strengthen ties with new friends, and to a lesser degree, meet new people online (Acquisti and Gross, 2006). Moreover, greater intensity in using Facebook can lead to higher social trust, and civic and political participation.
(Valenzuela, Park and Kee, 2008). Thus, it seems that Facebook can create social capital among its users (Ellison et al., 2007). While Facebook is primarily used for social networking and may not be suitable to substitute mainstream groupware completely, there are several features in Facebook that could be embedded into a traditional groupware (Koch, 2008).

**Prior Research on Information and Communication Technologies and Social Capital**

In fact, prior researchers have noted that ICT usage can change both individual as well as collective social capital (Urry, 2006; Yang, Lee and Kurni, 2007). Mobile technologies, in particular, have facilitated and transformed social interactions to bring social networks together thus avoiding social exclusion (Yang et al. 2007).

More relevant to our present context, other researchers have proposed that ICT tools that are embedded in the social networks, in which they are part of, can increase the social capital of the communicating actors (Huysman and Wulf, 2006). Different design approaches for ICT tools can lead to the formation of different dimensions of social capital. For instance, structural social capital can be achieved if ICT tools are able to make user aware of each other or of artifacts other have created to overcome spatial or temporary boundary. Relational social capital can be enabled by ICT tools that help the communicating actors to gain reputation from their active contribution or IT tools that are capable of suggesting expert with the closet social ties with the information seeker. Cognitive social capital can be enabled by ICT tools that provide the required bandwidth to represent communicative activities and human context of interaction, opportunities to ground discussion on shared materials and represent the history of communications.

In summary, it appears that when an appropriate design strategy is adopted, ICT tools low in social presence and contextual cues could possess the capability to create social capital among communicating actors.

**Selected Facebook Features to Create Social Capital**

In this section, we briefly discuss some selected Facebook features that we believe are capable of exhibiting specific social capital dimensions, which could then help to enhance the socio-emotional processes (see Table 2).

<table>
<thead>
<tr>
<th>Social Capital Dimension</th>
<th>Facebook Features</th>
<th>Social Capital Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust</td>
<td>1. Status Update</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Notification</td>
<td></td>
</tr>
<tr>
<td>Reciprocity</td>
<td>1. Photo Sharing / Tagging / Commenting</td>
<td>Social Interaction Tie</td>
</tr>
<tr>
<td></td>
<td>2. Poke</td>
<td></td>
</tr>
<tr>
<td>Identification</td>
<td>1. Social Profile</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Friends</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Newsfeed</td>
<td></td>
</tr>
<tr>
<td>Shared Language</td>
<td>1. Wall</td>
<td></td>
</tr>
</tbody>
</table>

**Table 2. Selected Facebook Features**

**Social Awareness**

Status update allows Facebook users to post their current activity, status, relation and vicinity information, which is then visible to their friends. Notifications are messages sent by Facebook applications that inform users on what their friends had been doing with the particular application. From the social awareness perspective, allowing GVT members to be socially aware of each other’s status information and activities with the various applications can bring about status equalization (Wellman et al., 1996). For instance, members in the GVT could be playing the same Facebook game and the notifications allow each other to know when a particular member is playing instead of working. Such exchange of social information via status update and notifications could lead to the formation of relationships that have the same high level of trust as face-to-face collocated team members (Walther, 1992).
**Social Presence**

Photo sharing allows Facebook users to upload their photographs for their friends to view. It is also possible for friends to tag other Facebook users in the photographs, which will circle/box the tagged person’s face in the photograph with a corresponding name listed below the photograph. In addition, friends can leave comments about the photographs for others to read. Poke allows Facebook users to send a message-based gesture that literally “pokes” the other users. Both features, therefore, allow GVT members to see and interact with each other thus increasing the perceived social presence. Other than leading to perceived usefulness, trust and enjoyment with Facebook, these two features encourage GVT members to view/tag/comment on each others’ photographs and to poke at each others. Consequently, we believe that over time, GVT members will develop a norm of reciprocity in their work tasks.

**Social Identity**

Social profile allows the Facebook users to list their personal information such as basic demographic, personal information, contact information and Facebook groups’ membership. The friends feature literally allows the Facebook user to add other users as their friends. Newsfeed is similar to notifications but there is a clear distinction. Newsfeed updates the Facebook users with almost everything that their friends are doing on Facebook, which are mostly unrelated to applications. For instance, new group membership, posting of new photographs and updating of status. Collectively, these features facilitate the process of group prototyping and group categorization (Hogg et al., 2004) leading to the formation of a social identity among GVT members.

**Mutual Knowledge**

Wall is an informal forum for friends to post comments or insight about a Facebook user, which is visible to everyone else. Overtime, as GVT members post on each other’s wall, a system of shard meaning among members may develop.

### PROPOSED METHODOLOGY FOR FUTURE RESEARCH

In this section, we propose how our conceptual framework may be validated using Facebook. A preexperimental one-shot case-study design will be used (Neuman, 2006, pp. 255). This is also known as a one-group posttest-only design in which multiple GVTs, each GVT as an individual case, is considered a single treatment group and allowed to use the same Facebook SNS to perform some fixed tasks. We may then use a mixture of qualitative and quantitative data collection techniques to test our propositions. Such an approach also makes it possible to perform both within-case and cross-case comparison. It is, however, important to ensure that the participants are not acquainted with each other beforehand and do not have any prior Facebook experience.

<table>
<thead>
<tr>
<th>Task Type</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Task</td>
<td>Establish Social Profile</td>
<td>Comment on teammates’ photos, Poke teammates, Post on teammates’ wall, Update Status</td>
<td>Read Newsfeed and post comment, Read notification and post comment, Reply to teammates’ posting on own wall, Update Status</td>
</tr>
<tr>
<td></td>
<td>Add teammates as friends</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post 3 photos of yourself</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Update Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Task</td>
<td>Self Introduction</td>
<td>Brainstorm ideas to answer case question, Poll on best ideas, Finalize initial recommendation plan, Prepare initial recommendation plan</td>
<td>Discuss amendment to final recommendation plan, Prepare final recommendation plan</td>
</tr>
<tr>
<td></td>
<td>Read case during online meeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Task Allocation</td>
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</tr>
</tbody>
</table>

**Table 3. Proposed Tasks List**
The main task is for the participants to stimulate a GVT and collaborate virtually to discuss a suitable business case such as the one on the implementation of an Enterprise Requirements Planning system (Hammond, 2004). The entire study is suggested to take place over a three weeks period during which the participants are required to work on the project tasks and a series of social tasks (see Table 3). The participants should be further encouraged to interact socially using Facebook as much as possible (see Figure 3). In fact, the social tasks listed in Table 3 are designed to ensure that the participants will use all of the Facebook features operationalized in Table 2 at least once.

Towards the end of the three weeks, the participants could be required to submit a two pages recommendation plan to the management of the protagonist company in the case. In addition, the participants will be required to submit a written report on their usage experiences with Facebook. To ensure that the participants provide feedback on all of the relevant features, it might be necessary to provide open response questions targeting at each specific feature. Alternatively, a face-face interview could be conducted. Content analysis could also be performed on the inputs provided by participants for certain features such as wall and newsfeed. The qualitative data collected could be analyzed using an appropriate coding technique (see Neuman, 2006, pp. 460).

In addition, a survey questionnaire could be administered to gauge the perception of the participants on: 1) the degree in which each of the Facebook feature exhibits the desired characteristics, e.g. social awareness or social identity; and 2) the degree in which each of the Facebook feature leads to the creation of the particular social capital dimension. The instrument scales could be created and validated through a formal procedure as described in Moore and Benbasat (1991).

CONCLUSION

In this paper, we emphasize that in order to improve the effectiveness of GVT, it is necessary to consider the socio-emotional processes (Powell et al., 2004) among members in addition to the traditional task processes. To this end, we conjecture that the various social capital dimensions (Nahapiet and Ghoshal, 1998) can help to enhance the socio-emotional processes. Moreover, since groupware is the primary software tool used by GVT, we further propose that groupware features that exhibit a set of characteristics, namely social awareness, social presence, social identity and mutual knowledge, could lead to the creation of the required social capital dimensions. To illustrate our conceptual model, we make a case for the adoption of
Facebook, a popular SNS, as a possible groupware. Specifically, we reason how selected Facebook features could exhibit the required characteristics for creating the social capital in GVT.

**Limitations**

However, there are several limitations that should be noted. First, we have only proposed four groupware features in our conceptual framework. There could be other relevant features that have not been examined in this paper. Second, the conceptual framework in its present state does not take into consideration the demographic and social background of the GVT members, which could potentially affect their propensity to use SNSs such as Facebook for collaboration. Future research, therefore, needs to investigate the moderation effect of demographic and social background on GVT outcomes.

Third, this paper has not examined other SNSs such as Friendster (http://www.friendster.com) and MySpace (http://www.myspace.com). As discussed earlier, whether a SNS is able to support GVT is contingent on the repertoire of communication tools and applications that is provided by the SNS. While Friendster supports the addition of original and third party applications, MySpace does not provide support for such applications. Thus, whereas Friendster could also be a potential groupware candidate, it is unlikely that MySpace would be appropriate.

**Potential Contributions**

Nonetheless, this paper could potentially make several theoretical and practical contributions. Theoretically, we propose a viable conceptual framework to improve GVT effectiveness via enhancing the various socio-emotional processes. Practically, we suggest how existing groupware features can be enhanced. More importantly, we lay the groundwork for exploring the feasibility of using SNSs such as Facebook as groupware. This can give rise to a business model that generates substantial revenue for SNSs through offering groupware as a software service.

A caveat here is the need to clearly delineate the data ownership and security of sensitive data belonging to organizations using commercial SNSs. This is because the End User License Agreement (EULA) of the SNSs could be biased in favor of the owners/operators of the SNSs. Moreover, the legal ownership of the intellectual properties created by GVTs using commercial SNSs should remain with the respective organizations. Legal agreements need to be put in place to ensure this safeguard. If these two concerns can be adequately addressed, we believe the potential for commercial SNSs to provide groupware service is immense.

**ACKNOWLEDGEMENTS**

The authors thank Dr. Klarissa Ting-Ting Chang for her guidance during the initial conceptual development of this paper. We also thank the mini track chair and five anonymous reviewers for their constructive comments on an earlier version of this paper.

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