Evaluating Processes and Performance in Virtual Teams

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ABSTRACT

This article describes a study to analyse the actual processes involved when virtual teams (VTs) undertake specific group tasks. Six VTs were established and communication was monitored through a discussion board. The content was coded using the TEMPO system developed by Futoran et al. (1989), and the communication pattern of each virtual team was analysed. A number of inferences can be drawn which will assist in future performance management.

INTRODUCTION

The challenges of globalisation in the 21st century have forced many organisations to consider the adoption of distributed projects for horizontal and vertical cooperation with other companies to sustain competitive advantage. Analysts have predicted that spending on distributed project management solutions will grow from $2 billion in 2002 to $7 billion in 2007 (Collaborative Strategies, 2003). This approach has resulted in the formation of both formal and informal temporary alliances between organisations and increasingly the use of virtual teams (VTs) (Townsend et al., 1998; Qureshi et al., 2006).

VTs can improve business performance by reducing cost, shortening cycle time, increasing innovation, and facilitating leveraged learning (Lipnack & Stamps, 2000). However, studies regarding the performance of virtual teams typically show that they under perform when compared with traditional FTF teams (Warkentin et al., 1997; Valacich & Sarker, 2002). This may be due to communication obstacles, difficulties in building social relationships or misuse of communication technologies (Anderson et al., 2002; Kirkman et al., 2002).

The majority of research on VTs has utilised quantitative analysis (e.g., Kirkman et al., 2004; Kock & Lynn, 2005) with few studies focusing on qualitative analysis (e.g., Ocker, 2005). Furthermore, to date, there has been little research to examine exactly how virtual teams work using their text-based communication patterns. This study addresses this issue through an investigation of the "written conversation" on a discussion board from 6 virtual teams. Communication patterns were developed for each group using a novel approach based on the TEMPO system, and then evaluated through a qualitative analysis process. This allowed the researchers to explore communication problems in depth and draw conclusions concerning more effective management of VTs.

BACKGROUND: MODELS OF GROUP PROCESSES

In this section, four models of group process are introduced chronologically: Tuckman's model (1965), Punctuated Equilibrium Model (Gersick, 1988), the Periodic Table (Lipnack, 2000), and Johnson's Virtual Teams Development Model (2002). These are evaluated in regard to VT processes.

Tuckman's Forming Storming Norming Performing Model

Tuckman (1965) developed a four-stage model for group process in 1965 as the "Forming Storming Norming Performing" model. Later, a fifth stage named "Adjourn-

ing" was added to the model in 1975. Despite its name this model is an elegant and helpful explanation of team development and behaviour. The five stages are:

1. **Forming:** This stage refers to a period when members are trying to determine their positions in the group, procedures and rules to follow. The characteristics are: (a) high dependence on leader for guidance and direction; (b) individual roles and responsibilities are unclear; (c) leader must be prepared to answer lots of questions about the team's purpose, objectives and external relationships; (d) processes are often ignored.

2. **Storming:** This stage is formed when conflicts arise as team members resist the influence of the group and rebel against task accomplishment. The characteristics are: (a) consensus is not easily reached; (b) members compete for position as they attempt to establish themselves in relation to other team members and the leader; (c) increased clarity of purpose yet uncertainties persist; (d) cliques and factions form and there may be power struggles.

3. **Norming:** This stage begins when members establish cohesion and commitment to the tasks and find their own way of working together. The characteristics are: (a) agreement and consensus is largely formed among team; (b) roles and responsibilities are clear and accepted; (c) crucial decisions are made by group agreement and minority decisions may be delegated to individuals or small teams within group; (d) commitment and unity is strong; (e) members may engage in fun and social activities.

4. **Performing:** This stage occurs when the group shows proficiency in working together. The characteristics are: (a) the team is more strategically aware; (b) members know clearly why they are doing what they are doing; (c) the team has a shared vision and is able to stand on its own feet with no interference or participation from the leader; (d) the team has a high degree of autonomy; (e) disagreements may occur but are easily resolved.

5. **Adjourning:** Adjourning is arguably more of an adjunct to the above four-stage model rather than an extension. It is the termination of the group when the task is completed. The main character-istic is that everyone can move on to new things feeling good about what's been achieved.

This model is a linear progression model. Each stage is an essential step for a team and if the previous stage has not been accomplished, the latter stage would not be successful.

Punctuated Equilibrium Model

The Punctuated Equilibrium Model of group development by Gersick (1988, 1989) was regarded as an alternate paradigm to Tuckman's (1965) traditional model of group development. Gersick found that all groups move through periods of inertia separated by a brief period of transition. The model includes three brief transition periods at the beginning, midpoint, and the end, and two long work periods between the transition points.

The first transition starts when the group initiates the first meeting and discusses the strategies and approaches to complete tasks. After the first long work period, the midpoint transition concerns a re-examination of the strategies, procedures and goals set up in the first transition. The second long work period is similar to Tuckman's Performance stage where the consequence becomes the members' focus of attention. The end transition is the completion period when members finish the tasks and adjourn. This is similar to Tuckman's Adjourning stage. Basically, the Punctuated Equilibrium Model is regarded as a leaner model.

The Periodic Table

"The Periodic Table" model (*Figure 1*) by Lipnack et al. (2000) suggests an alternative view of group process by maintaining that the group process is multi-functional rather than sequential. On the horizontal dimension, it contains inputs, processes and outputs. The elements on the vertical dimensions are purpose, people, links and time; each of these vertical dimensions follows the procedure illustrated by the flow chart (inputs➔system➔outputs), and is independent of each other. As the flow chart indicates, the system receives input from one of the horizontal dimensions, and then it processes the element to produce the corresponding output. The output is also directed back to the input to strengthen or weaken the force of the current progression on subsequent inputs.

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