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Team Performance Study: Determining the Factors that Influence High Performance in Teams

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Team Performance Study: Determining the Factors that Influence High Performance in Teams

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ABSTRACT: The purpose of this paper is to describe a study, in the initial stages, which will attempt to determine the factors that differentiate high performance work teams from teams whose performance is good, but not exceptional. The teams in the study are in the U. S. supplier network of a large global automotive manufacturer. The researchers will use surveys, interviews, and observations to test models that, based on the literature, suggest factors that influence team performance, including innovation as a measure of performance. Multiple perspectives will be employed, including: the strategic lens (structure/ambidexterity), the temporal lens (entrainment) and the organization behavior lens (mental models and ambidexterity). In Phase 1, the research team will visit several supplier plants to determine the factors to be examined. In Phase 2, the researchers will conduct in-depth studies in some workplaces followed by tests of findings in different workplace environments. The goal of our study of work teams is not only to advance the literature of team performance, but also to provide important implications to managers of all team-based organizations.

INTRODUCTION

The importance of teams in the workplace cannot be overestimated. Teams have become an important, even essential, workplace structure to get work done; they exist at all levels of organizations and fulfill a wide range of purposes (Katzenbach & Smith, 2003). Teams have become an important topic for academic researchers who have produced a large number of studies concerning the factors that make teams effective and the factors that influence team dynamics (Harrison, Mohammed, McGrath, Florey, & Vanderstoep, 2003). Despite the widespread use of teams, the importance of teams, and the abundance of research on teams, we could find no empirical research that determines the factors that differentiate good teams from high performing teams. We propose to fill that research void.

Our research team, consisting of practitioners and academic researchers, shares an interest in team performance with a large, global automotive company. (In this work the company will be referred to as Company A to preserve confidentiality.) Such is the interest of Company A that the research team has been granted permission to conduct our research in their extensive US supplier network. The researchers will study teams in various supplier plants to determine causal factors which distinguish high performance teams from teams that merely perform well. The researchers will use surveys, interviews, and observations to test models that, based on the literature, suggest factors that influence team performance, including innovation as a measure of performance.

Work teams are the basic units of Company A's operations. Performance of work teams is essential to the quality of its products and its global reputation for quality. We chose the work teams of Company A suppliers as the subjects of our investigation because of their exemplary efficiency and effectiveness, which contributed to Company A's superior performance and development in the past decades. There are no poorly performing teams, only good to excellent teams. Our study on these work teams will not only advance the literature of team performance, but also provide important implications to managers of all team-based organizations.

Ancona, Goodman, Lawrence and Tushman suggest that "Focusing multiple lenses on a given phenomenon highlights different aspects of that phenomenon....each lens suggest a different set of practices and solutions to managers" (2001:645). For our research we will examine the issue of team

performance through multiple lenses: the strategic lens (structure/ambidexterity), the temporal lens (entrainment) and the organization behavior lens (mental models and ambidexterity).

TEAMS AND AMBIDEXTERITY

When examining organizational performance through a strategic lens, the role of structure requires particular attention. Alfred Chandler (1962) suggested that successful organizations adapt their structure to fit their strategic needs. Later, Duncan (1976) suggested that firms meet the competing demands of aligning with the needs of the business to ensure efficiency and adapting to the changing needs of the environment in order to take advantage of opportunity, by creating dual structures within their organization. Such structures focus on either alignment or adaptation; the presence of both insure overall organizational ambidexterity. More recently, Gibson and Birkinshaw (2004) refined the concept of ambidexterity, suggesting that two types of ambidexterity can exist: structural ambidexterity, creating dual structures within an organization to deal with the inherent conflicts of alignment and adaptation, and contextual ambidexterity, “the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit” (2009). Under such situations, organizations create the capacity in individuals to deal with the conflicting demands of adaptation and alignment, thus insuring overall organizational ambidexterity.

In observing the number and nature of teams in pilot visits, we were struck by the different charter given to different teams on the supplier plants. Some teams were production focused; some were problem solving focused; some were improvement focused. We propose that business units can achieve ambidexterity through the development of teams dedicated to either adaptation or alignment, thus creating ambidextrous organizations. These teams act as bridges between structural ambidexterity and contextual ambidexterity in that firms create the teams to serve different purposes and, in many situations, individuals can volunteer to participate in them. Thus, individuals are presented with an organizational structure within which they can serve adaptation needs and the day-to-day alignment demands. Such action mitigates the tension related to whether ambidexterity exists as an organizational or individual function (Raisch, Birkinshaw, Probst & Tuchman, 2009)

In summary, we suggest that the following propositions be tested in our study:

P1: Stable work teams focus on alignment thereby improving organizational performance.

P2: Ad Hoc and cross functional teams, populated through choice, focus on adaptation thereby improving organizational performance.

TEAMS AND TIME

In introducing the Academy of Management Review issue in 2003 devoted to the temporal perspective, Ancona, Goodman, Lawrence and Tushman refer to time as the “new lens” (2003, p. 645). In support of their view, they cite few articles focused on time and, among those, most are recent to that date; the oldest related to organizations/management in 1985 (Clark). Other disciplines, such as physics, have focused on time as a topic of significance (Perez-Nordtvedt, Payne, Short, & Kedia, 2008). Despite the lack of long term interest in the temporal dimension displayed by management academic researchers, practitioners are keenly aware of time: manufacturing shifts, project deadlines, business cycles, new model cycles, quarterly results...the list is endless. The roots of management as a profession and discipline lie in time through Scientific Management (Taylor, 1911). Thus we propose to examine the impact of time on teams to determine if the capacity of some teams to relate better to temporal factors

enables them to perform at higher levels than other teams. In particular, the concept of entrainment appears fundamentally related to the function of teams.

Our approach to studying temporal aspects will most likely require the case study method. Therefore, we propose the following research questions:

Research Question 1: How does entrainment among team members affect team performance?

Research Question 2: How does entrainment among interconnected teams affect team performance?

Research Question 3: How does entrainment among teams affect organizational performance?

TEAMS AND MENTAL MODELS

Shared mental models are defined as “The extent to which individual team members’ mental models overlap – the extent to which team members shared the same understanding of the task and the team (Blickensderfer, Cannon-Bowers, & Salas, 1997: 252). As they coordinate with each other, team members share their understanding of the task, work environment, interactive patterns, procedure timing, location of expertise, and technology. Although the literature consistently demonstrates the positive effects of shared mental models on team performance (Espinosa, Slaughter, Kraut, & Herbsleb, 2007; Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000; Reagans, Argote, & Brooks, 2005), few studies investigate the interrelationship of various types of shared mental models.

Despite the prediction that various types of shared mental models compliment with one another, empirical research shows mixed results. Mathieu et al. (2000) studied ad hoc teams and concluded that shared task mental models and shared team mental models improve team processes and performance in a complimentary manner. On the other hand, Espinosa et al. (2007) examined team familiarity and task familiarity and found that the two types of shared team knowledge substitute, rather than complementary to, one another in their impact on performance.

To explain the inconsistent findings in the relationship between various types of shared mental models, it is suggest that there is a diminishing return on team innovation and performance from the increase of shared mental models. This relationship is plausible because (1) in many situations, solutions can be identified with the combinative use of a few shared mental models so not all shared knowledge is necessary, and (2) team capacity is limited so that only limited shared mental models can be simultaneously employed to solve a problem. Further, too many shared mental models are likely to restrict team flexibility. In fact, similar phenomenon has been demonstrated in team learning research. Berman, Down, and Hill (2002) show that the NBA team performance was first increasing and became decreasing as the team level tacit knowledge accumulated.

Suppose that the proposed diminishing return of shared mental models is valid, then why do many successful organizations continue to nurture multiple mental models? It is proposed that multiple shared mental models back up each other in a changing environment and sustain team performance. This is because (1) a changing environment is likely to block the access to certain shared mental models, and (2) a changing environment imposes stress on teams which reduces the effectiveness of shared mental models. Ellis (2006) shows that acute stress reduces the viability and quality of shared mental models, which lead to impeded performance.

In summary, we suggest that the following propositions be tested in our study:

P3: There is a curvilinear relationship between the strength and number of shared mental models and team innovation and performance..

P4: The effect of shared mental models on team innovation and performance is moderated by environmental turbulence.

The following factors will be considered control variables in the study: task complexity and individual experience (time on task or number of products produced).

METHODOLOGY

Research Design

Our study design consists of two phases: (1) plant visits to several Company A supplier firms and (2) a survey study based on the questionnaire developed after soliciting expert opinions in the first phase. In Phase 1, the researchers will conduct exploratory plant visits and interviews to (a) observe and understand relevant plant operations and processes, (b) collect expert opinions on the survey instrument, (c) identify any factors that may cause high team performance (control variables), and (c) secure access to further data collection. These plant visits will require observations of operation, review of training and orientation programs, interviews with managers and team members, understanding how team performance is measured, understanding employee recognition programs, communication, suggestion programs, Continuous Improvement teams, etc.

In Phase 2, the researchers will conduct in-depth studies in some workplaces followed by tests of findings in different workplace environments. A number of supplier network firms have already volunteered for the different phases of the project.

Statistical Analysis

The statistic software application SPSS will be used to analyze the data. First, descriptive analysis will be performed. Non-responder bias will be analyzed according to Fowler's (1993) book on survey research. Appropriate data transformation will be conducted to cope with skewness and kurtosis of the data distribution. Then factor analysis will be performed to load single item on corresponding constructs. The data will then be analyzed using multiple regression models. Possible data problems such as collinearity will be carefully treated. The hypotheses will specify the relationship between variables so they are testable with multiple regression models. Control variables will be entered into the baseline model. Then, the hypothesized independent variables will be entered in the models. Significant results will be described in the conference paper with discussion on how the findings support the hypotheses and contribute to the literature as well as the business world.

CONCLUDING REMARKS

The current status of the study considers two parallel tracks. First, developing the literature review, model crystallization (reduce the list of shared mental models, etc.), and measurement development. Second, completing more pilot plant visits to ascertain the validity of our approach and the availability of information. Our study of work teams will not only advance the literature of team performance, but also provide important implications to managers of all team-based organizations.

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