

Team stressors, management support, and project and process outcomes in new product development projects

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Abstract

Stress is an important research area in the group and organizational behavior literature, yet it is underestimated in the new product development scholarship. In particular, the impact of team stressors on project and process outcomes was not empirically investigated in NPD project teams. In this study, we test the influence of team stressors, consisting of team crisis and anxiety, on the project/process outcomes, such as team learning, speed-to-market, new product success and proficiently executing the each stage of product development process, including the degree of management support during the project. By investigating 96 NPD projects, we found that when a high degree of management support is seen during the project, team crisis positively influences team learning, speed-to-market and new product success, and team anxiety positively impacts speed-to-market. Interestingly, when low management support was noted during the project, we were not able to find any statistical association between team crisis and anxiety, and project outcomes. Also, we found that when there was a high level of management support, team anxiety is positively related to the proficiency in executing the idea generation, market/technological assessment, product development, and product commercialization stages; and team crisis is positively related to the market/technological assessment, product development, product testing, and product commercialization stages. Further, we found that team anxiety influences the proficiency in the product development stage regardless of low or high level of management support. Next, managerial and theoretical implications were discussed.

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1. Introduction

Work or job stress is a popular research area in the organizational behavior (Lyne et al., 2000; Vigoda, 2002; Fernandez and Perrew, 1995), human resource management (Sikora et al., 2004) and strategic management literature (Sullivan and Bhagat, 1992). A number of studies showed that stress is a serious problem in many organizations (Latack and Havlovic, 1992). Specifically, researchers demonstrated that stress results in employee absenteeism and burnout (Iverson et al., 1998; Terry et al., 1993), and poor job performance (Cummins, 1990). However, even though most of the empirical studies on stress were reported at the group and organizational levels, we have

limited knowledge of the stress in new product development (NPD) teams (Barczak and Wilemon, 2003; Kim and Wilemon, 2001).

In a NPD project team, stress is not only an individual but also a collective phenomenon. Since NPD projects involve high level of task-related job complexity, process and environmental uncertainty, it is reasonable for team members to have stress both individually and collectively. Team stress refers to feeling of crisis and anxiety as a whole where team crisis refers to a sense of urgency and team anxiety indicates the fear (Akgün et al., 2006). Even though team crisis and anxiety are embedded in most of the NPD projects, not much is known about how they impact the NPD project outcomes, such as team learning, speed-to-market and new product success (NPS) and the NPD processes or stages (e.g., idea generation, technical and market assessment, product development, testing and

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commercialization) completed proficiently. Organizational and work group level studies have conflicted arguments on the impact of stress on the performance and processes, however. While some scholars argued that stress has a significant implication for business success (Parasuraman and Alutto, 1984), others indicated the deteriorating impact of stress on performance (Tang et al., 2001). However, as pointed out by some writers, the issue is not the existence of stress that influences the performance, rather it is stress management interventions that determine the impact of stress on the performance (Dewe and O'Driscoll, 2002). Specifically, management interventions and support mitigates the negative influence of stress on performance, which then turns the stress into a strategic tool to improve the firm performance. Therefore, our goal is to empirically test the influence of team stressors, i.e., crisis and anxiety, on the project and process outcomes in case of a high and low level of management support during the NPD project, which has been neglected for a long time in the NPD literature.

2. Team stressors, management support and project outcomes

The term of “stress” is a fascinating concept for researchers and has been investigated from several disciplines, including sociology, management, anthropology, psychology, physiology, endocrinology, and medicine (see, Shirom, 1982; Fleming et al., 1984). However, the studies investigating the concept of “stress” on the heterogeneous and real organizational work groups in general, and cross-functional new product development teams in particular are recent and have received limited empirical attention. Kim and Wilemon (2001), for instance, noted that project team members in NPD are often confronted with stressful situations as they have to adapt to new or changing customer demands, technical uncertainties, organizational ambiguities, and encounter various types of conflicts. Further, by interviewing with 58 project team members involved in four product development teams, they identified sources of team member stressors and stress level at each development phase, and the impact of stress on team members' performance. Barczak and Wilemon (2003) also investigated what major stresses NPD team member experienced and the impact of stress on team and individual performance. Interestingly, these and other researchers (e.g., Saleh and Desai, 1990), focused on stress at the *individual level* in a NPD team settings by investigating the relationships between job stress and task performance, and team member collaboration and interactions. There is no doubt that stress is an individual level phenomenon and its effect depends on how individual's evaluate and receive it (Fleming et al., 1984). Nevertheless, it should be also noted that stress is a collective reality in a team settings. Based on the writings on cross-functional team integration (Kahn, 1996; Millson and Wilemon, 2006) and structuration theory (Giddens, 1984), stress is socially

distributed in teams and denotes the *collective awareness of individuals* of stressors as a result of perceived conditions or happenings in the project's processes. Specifically, team members are obligated to act heedfully with other team members (e.g., members may need to subordinate their own need, wants and desires for the benefit of the team project) and to develop harmonious relationships. Stress perceived by team members is thus embedded in the social system of the group of individuals via their relationships and networks, and is enmeshed in the collective actions of team members. Indeed, a person's feelings and perceptions of a stressor are determined not only by his/her individual characteristics, but also by things such as project-related task works, routines and processes, and the characteristics and behaviors of other team members. In turn, project-related routines and tasks, and other team members' perception of stressors are created or shaped by the collective actions, interactions, collaborations, animosities and friendships. Contemporary writings on stress in team settings also suggest that team members experience fear, pressure and uncertainty, and feel confused in a collective manner. For instance, Akgün et al. (2006) noted that team members collectively feel crisis and anxiety, during projects. The authors further operationalized team crisis and anxiety, and suggested NPD project teams researchers investigate them in greater detail.

Team crisis indicates a sense of urgency and hinders team members to function effectively (Akgün et al., 2006). Specifically, team crisis distorts team members' sense-making and information processing, making them unable to plan, reason and understand the situation accurately, and limits individuals' prior knowledge on the potential interactions between process and project variables, and their consequences (cf. Pauchant and Mitroff, 1990). Further, as a disruption, team crisis threatens the team's social identity, a basic sense of identity (cf. Pauchant and Mitroff, 1990). Anxiety is an apprehension, a state of uneasiness or fear about anticipated real or perceived events, which influences the actions and behaviors of individuals. A specific form of anxiety is social or team anxiety, which, in one form, manifests itself as a fear of social situations, where individuals perceive themselves to be vulnerable to negative evaluation by others (Verbeke and Bagozzi, 2000). Anxious teams selectively focus on threatening information and tend to interpret ambiguous information in a negative manner. This leads to biases in their judgments and recollections of unpleasant social events, recalling negative information, [memory biases,] incorporating negative self-perception and metaperception (Akgün et al., 2006). In the context of NPD, team anxiety reduces the team members' capability to evaluate the alternative options, project procedures and tools, and the ability to interpret new information fairly (Kontogiannis and Kossivelou, 1999; Mandler, 1982).

When crisis and anxiety are present in a team, the members feel insecure and become frustrated and frightened. Schein (1993) emphasized the need to create

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