BABEŞ-BOLYAI UNIVERSITY

FACULTY OF PSYCHOLOGY AND EDUCATION SCIENCES

PSYCHOLOGY DEPARTMENT

PHD THESIS:

ORGANIZATIONAL LEARNING IN HOSPITALS

(ÎNVĂȚARE ORGANIZATIONALA ÎN SPITALE)

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CLUJ-NAPOCA

2012

Abstract

Over the last 10 years organizational learning has been a constant presence on the agenda of health care policy institutions (NHS, 2000; Aspden, Corrigan, Wolcott & Erikson, 2004; Aspden, Wolcott, Bootman & Cronenwett, 2006; Woodward, Randall, Hoey & Bishop, 2004; Edwards, 2012) and it appears to be generally accepted that it plays a central role in increasing the quality and safety of medical care. The aims of this thesis are to investigate how one can facilitate organizational learning in medical units, and whether it is related to outcomes such as unit performance and suboptimal care. The thesis is organized in 7 Chapters.

In Chapter 1 we provide an overview of how the discipline of organizational learning has evolved over the years, and how theory and research has been refined up to the present day conceptualization of collective learning as a meso-level organizational phenomenon (House, Rousseau & Thomas-Hunt, 1995; Edmondson, 2002). We end Chapter 1 with an argument as to why investigating collective learning behaviors in hospitals might have some particularities due to cultural characteristics of the medical profession.

The concept of organizational learning is a topic of interest that can be traced back to the ‘60s (Fiol & Lyles, 1985; Levitt & March, 1988; Lipshitz & Popper, 2000; Edmondson & Moingeon, 1998; Kozlowski, Chao & Jensen, 2010). The diversity of the theoretical approaches of the scholars working on this topic throughout the ‘80s and the ‘90s has had both positive and negative consequences for the research field on the topic (Fiol & Lyles, 1985; Huber, 1991; Edmondson & Moingeon, 1998; Lipshitz & Popper, 2000; Pawlowsky, 2001). On the positive side, it led to a rich conceptual literature describing a very wide range of processes, methods, instruments, behaviors, attitudes, and values related to organizational learning. On the negative side, it has resulted in little communication between different lines of research.

Although we are far from an integrated theoretical framework on organizational learning, or even from a generally agreed upon definition, important theoretical and methodological

advancements have been made in investigating the organizational learning process through the emergence of the meso-level framework of organizational behavior (House, Rousseau & Thomas-Hunt, 1995), and the field work of Amy Edmondson (1996b, 1999, 2002, 2003). Based on extensive field research (Edmondson, 1996b, 1999, 2002), she argues that organizational learning is a group-level phenomenon. In this paradigm, organizational learning is said to happen in groups of people working together within the organization (e.g. teams or departments), and varies greatly from one unit to the other in terms of processes involved, behaviors displayed, or outputs (Edmondson, 1996b; 1999; 2002). The meso-level paradigm of organizational learning is based on Senge's perspective, who describes teams as the key level at which to study and understand collective learning processes in organizations (Senge, 1994; Edmondson, 2002). Although there is not a unified opinion on how to define team-learning in field research, it has been operationalized through collective behaviors indicating reflection on team's actions or on individual actions within the team, aiming at improving team's future performance. We refer to, and understand, collective learning behaviors as practices or actions taken by team members, through which they share information and reflect on their collective and individual behaviors within the team, and develop new knowledge and understandings in order to improve team performance.

Statistics show that one is more likely to die as a result of medical care than in car accidents, from breast cancer, AIDS (Kohn et al., 2000), or plane crashes (Berwick & Leape, 1999). A culture of blame has often been described as the reason why medical mistakes are not reported, and thus not exploited as learning opportunities in medicine (Kohn et al., 2000; Edmondson, 2004b; Berwick & Leape, 1999; Collins, Block, Arnold & Christakis, 2009; Catino, 2009; Iedema, Jorm, Braithwaite, Travaglia & Lum, 2006; Iedema et al., 2011; Waring, 2005). Understanding unit characteristics that facilitate detecting and reflection on errors in medical settings might be as important as implementing systems level solutions, and might prove itself as a key step in increasing patients' safety and quality of care.

In Chapter 2 we state our objectives in conducting this research. The main purpose of the thesis was to investigate antecedents and consequences of organizational learning in medical organizations as a group phenomenon (Edmondson, 1999; 2002). Our first objective was to develop a conceptual framework of collective learning antecedents and consequences in

hospitals. This objective in addressed in Study 1: *A Review of Empirical Studies Investigating Antecedents and Consequences of Collective Learning Behaviors in Hospitals.* Our second objective was to investigate the antecedents of organizational learning in hospitals. This objective is addressed in Study 2: *Exploiting Failures as Learning Opportunities in Hospitals. Heads of Departments as Collective Learning Facilitators,* and Study 3: *Predicting Collective Learning in Medical Departments: The Role of Perceived Status Differences.* Our third and last objective was to investigate consequences of organizational learning in hospitals. This objective is addressed in Study 4: *Collective Learning and Unit Performance in Medical Departments.*

Chapter 3 presents the results of our first study, a systematic review of the field research conducted in medical settings investigating organizational learning as a group-level phenomenon. The review was driven by several research foci. Our main interest was in identifying antecedents and consequences of collective learning behaviors in hospitals. We also report results on the types of research questions addressed, research designs used, and types of medical teams investigated. Twelve studies met our inclusion criteria. Our findings revealed that highly contextualized studies that use different ways of measuring organizational learning, different ways of conceptualizing medical teams, and different research methodologies, discuss similar antecedents of organizational learning. Variables like leadership behaviors, unit interpersonal climate, and hierarchical position were found to play a role in explaining organizational learning in hospitals across studies. We also found that despite an intense public discourse on the link between collective learning processes and patients' safety and medical organizations' performance, few studies actually report empirical data supporting this relationship. We integrate these findings and reflect on future research directions in the field of organizational learning in medical settings.

We designed our field research based on the results of the systematic review we conducted. In all three studies we measured four distinct types of learning behaviors: error communication, error analysis, reflection on process, and reflection on outcomes, and report on them separately. All three studies were designed to report on data collected in medical departments as the focal unit of analysis.

Chapter 4 presents the results of our first field study investigating the effect of learning-prone leadership behaviors, unit interpersonal climate, task interdependence and workload on collective learning behaviors in medical departments. Data were collected from 426 health professionals working in 28 medical departments of a county hospital in Romania. Prior to hypotheses testing we investigated the psychometric properties of the scales using confirmatory factor analysis. The hypothesized relationships were tested using structural equation modeling in AMOS. Results suggest that leadership style is strongly associated with learning behaviors, and that the relationship is partially mediated by unit interpersonal climate. We did not find support for the relationship between task interdependence and collective learning in medical departments, or for the relationship between workload and learning. These findings suggest that leadership skills and group dynamic are more important than task and work characteristics in predicting organizational learning in hospitals.

Chapter 5 presents the results of our second field study investigating one of the mechanisms through which leaders facilitate a safe interpersonal climate that favors collective learning in medical departments. We further extended the findings of previous study by testing a model in which perceived status differences is a mediator in the relationship between coaching behaviors displayed by the head of the departments and psychological safety. Data were collected in 30 departments of a teaching emergency hospital (N = 416). Structural equation modeling in AMOS was used for data analysis. Prior to model testing we investigated the robustness of the instruments using confirmatory factor analysis. We found evidence that leaders' coaching behaviors help reducing the perceive status differences, which in turn is positively associated with psychological safety, and collective learning behaviors in medical work units. Our findings show that leaders who encourage team members to collaborate and invite to open communication help attenuate the perceived status differences among departments' members.

Chapter 6 presents the results of the third field study investigating the relationship between collective learning behaviors and outputs such as perceived department performance and self-reported suboptimal care. In this chapter we address the last objective of this thesis by focusing on consequences of collective learning in medical departments. Data were

collected in 58 departments from two hospitals in Romania (N = 842). We used structural equation modeling, in AMOS, to test the mediating role of collecting learning behaviors in the relationship between leadership behavior and two indicators of unit performance. As in the previous two studies, we investigated four distinct types of collective learning behaviors: error analysis, error communication, reflection on process and reflection on outcomes. Results show that not all learning behaviors are consistently related to the two indicators of unit performance we measured. Error communication was not associated with perceived unit performance, or with suboptimal care. Error analysis is the only learning behavior consistently associated with both perceived unit performance and suboptimal care, in doctors and in nurses. We discuss the implications of our findings for designing collective learning instruments and practices for improving patients' safety and quality of care.

Chapter 7 provides a general discussion of the findings of our studies. Our main objective in conducting this research was to investigate antecedents and consequences of organizational learning in hospitals. The thesis was guided by three premises. Firstly, mistakes are a natural phenomenon in any organization, and they can be exploited as learning opportunities in order to improve future performance, provided that organizations are capable of acknowledging and reflecting upon errors in an honest and constructive way (Argyris, 2000; Senge, 1994). Secondly, collective learning in organizations are a team/unit level phenomenon and not an organizational-wide phenomenon (Edmondson, 1999; 2002). Thirdly, the medical professional culture has some particularities (Leape, 1999; 2002; Waring, 2005; Reeves et al., 2009) that might make collective learning practices in hospitals different from collective learning in other types of organizations.

The final discussions were organized in three distinct sections. We first summarized the aims of the studies we conducted and their main findings. We then pointed to the main contributions of our work for organizational learning theory in general, and for human resources practices in medical organizations. We ended the chapter with the limits of our work and the implications of our findings for future research.

Our work has contributions both for the theory on organizational learning and the practice of organizational development. The first contribution is that we developed, based on findings

of previous empirical research, a conceptual model of collective learning in medical organizations, and we further tested it in field studies. The theoretical review and the empirical studies we conducted support the idea that there are some particularities of the medical culture that influence collective learning in hospitals in particular. Our data suggest that the interpersonal availability, more than time availability, is relevant in engaging in collective learning in medical organizations. In terms of implications for human resources practices, these results show that developing coaching skills for medical leaders, and teamwork and effective communication skills for medical personnel are fundamental in order to develop organizational capacity to capitalize on past experience in order to improve future performance.

The second important contribution of our work is the fact that we identified that different learning behaviors have a different impact on performance. We found that health professionals across hospitals and organizational positions tend not to associate error communication with improved performance, but when acknowledged, they do analyze errors as a source for improvement. Collective learning, by definition, involves self-reflection as a key process for future improvement, but we found that reflection is not consistently associated with performance. In terms of practice, developing preventive, reflexive skills, although may not seem as relevant for performance for health professionals, might still prove relevant on a long term.

Overall, our research found evidence supporting Edmondson and McManus (2007) proposition that there is not a model of organizational behavior across professional domains, and that different organizational settings have different cultural nuances that bring specificity to a particular organizational phenomenon. This implies that any kind of intervention for organizational development should, and have to be tailored to match and integrate these specificities.

In our work we identified several research directions that invite to future investigation. Firstly, the type of research design we used limits our interpretation of the causality relationships. Although there is strong evidence in the literature, based on exploratory, qualitative enquiry, suggesting that the leadership style models the unit climate, we cannot

exclude that the interpersonal climate within the unit might influence leaders' practices. Unfortunately, this is difficult to capture in real organizational settings, but studying the leadership style and the unit interpersonal climate in relationship with learning behaviors, in the close proximity of a formal leadership change, might be able to shed some light on this matter. Secondly, we found that task interdependence and workload are not relevant in the context of collective learning practices in hospitals. Nevertheless, there might be other task or work characteristics that are relevant to the process of learning but they were not included in our design because the literature we reviewed did not report on them. Research conducted in other organizational settings suggest, for example, that task routineness might be relevant for predicting employees willingness to engage in collective learning practices. Thirdly, we found that different learning behaviors have a different impact on self-assessed performance. This invites to future research in to how effective different collective learning practices might be in terms of performance improvement in different organizational settings. This information should also be considered in the context of the cross-sectional design that we used, and also the fact that we reported on two indicators of performance that capture self-perceptions on two distinct types of team performance. Future studies might consider using longitudinal designs, but also interventions studies aiming at developing collective learning skills and measure the long term impact on performance. Fourthly, we reported on measurements of self-assessed collective performance and we found that collective reflexive practices are not very strongly related to these kinds of organizational outcomes. Both Fiol & Lyles' (1985), and Huber's (1991) reviews suggest that learning – the development of new knowledge and insights that are meant to improve future performance – might not always result in new behaviors. At the same time, in physicians, for example, it was found that reflection might be a rather individual practice and not a collective one (Waring et al., 2007). Future research should address if reflexive practices are more likely to impact perceived individual performance and whether this any form, translates to collective performance.

Key words: organizational learning, leadership style, unit interpersonal climate, perceived status diferences, unit performance, hospitals.

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