Exploring the role of task complexity and rapport on work satisfaction and learning in outsourced system development

Emergent Research Forum (ERF) Paper

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Abstract

Utilization of offshore development teams for information systems development (ISD) projects has become increasingly popular among companies seeking cost and productivity related benefits. However, little work exists to study the impact of task complexity and rapport in building team member learning capabilities and work related satisfaction. Social interdependence theory provides justification to examine whether task complexity increases cohesion that result in higher levels of satisfaction while social capital theory provides explanation for a similar role for team member rapport. We hypothesize that task complexity and rapport improve task related cohesion which in turn improves member learning and work satisfaction.

Keywords

Rapport, task cohesion, task complexity, Learning, work satisfaction, project performance.

Introduction

ISD is a human-centric activity and involves addressing extreme uncertainties when creating or upgrading new systems (Trendowicz et al. 2008). The offshoring of ISD projects adds new challenges to the team development process through difficult communication practices, shared understanding of required work and the additional reporting to monitor quality of work (Gantman and Fedorowicz 2016, Rai et al. 2009, Srivastava and Teo 2012). The presence of task complexities and interdependencies can have useful or detrimental effects on the team effectiveness (Hsu et. al 2012). When dealing with complex software development, the specifications and functionalities can be difficult to understand as well as the costs and delivery dates to estimate for the vendor (Susarla et al. 2017). Chen et al. (2017) state that the rate of failure is higher for complex software projects since complex projects require more investments from the vendor as well as greater communication between teams and better coordination with the client (Clemons and Hitt, 2004). According to social interdependence theory, a team can work cooperatively to accomplish shared goals or competitively to achieve a goal that only one or a few can attain (Johnson and Johnson 2005). Past literature has identified interdependence as a critical component of cohesion collaboration and expertise sharing (Ghobadi and D’Ambra 2013, Tarricone Luca 2002,). Task complexity is commonly prevalent in ISD program teams in the form of requirements elicitation (Anton Potts 1998), programming (Balijepally et al 2009), testing and verification (Hailpern and Santhanam 2002). In team literature task complexity has been identified as a moderator variable in influencing the effect of independent variables such as task and relationship conflict in improving dependent variables such as performance (Bradley et al. 2015). Espinosa et al. (2007) found that task complexity mediated the effects of task familiarity and team familiarity on performance. The direct role of task complexity in generating the cooperative effects
suggested by social interdependence theory has not been the subject of study in the onshore or outsourcing context. We believe task complexity is useful in improving cohesion particularly in outsourced ISD teams.

As offshore software development teams are created, it is critical that teams also develop attributes which can foster social structures conducive to collaboration. According to the social capital theory perspective, actions and behaviors that help build different aspects of social capital can benefit the entire team (Kostova and Roth, 2003). Given the difficulties related to executing successful offshore software development projects, a social capital theory perspective supports the investigation of embedded team development dynamics that may contribute to project performance. Rapport has been identified as a driver of the development of social capital and the key to collaboration between participants in a business setting (Gremler and Gwinner, 2000). Rapport is defined as “the quality of the relation or connection between interactants, marked by harmony, conformity, accord and affinity” (Bernieri et al., 1994, p. 113).

As team members engage in various tasks, rapport among team members may result in increased collaboration (Kotlarsky and Oshri 2005).

Ghobadi (2015) describes the importance of knowledge sharing in ISD projects by describing drivers that help software teams achieve effective sharing in a dynamic environment. Furthermore, ISD team members desire learning as a personal development goal. Vlaar et al. (2008) shows how team members value experience and new team members seek out experienced team members to ask for help. Vlaar (2008) describes how experienced members find it easier to understand requirements and bring valuable insight to a project. Therefore, ISD team members seek out knowledge to become more experienced in their role. In addition, as team members learn and grow in their role, they are given more tasks and responsibilities that enhance their career. This also leads to work satisfaction. As team members are more satisfied with their work, they are less likely to leave the project. With these issues in mind, this study aims to understand the relationship of task complexity and social proximity in the form of rapport and its potential impact on task cohesion and subsequently to the beneficial outcomes of learning and work related satisfaction. To this end, we develop a model of high performing ISD teams fostered by the presence of task complexity and rapport. This study provides three significant contributions to the study of project teams. First, it provides a theory-based approach to team development dynamics that is well grounded in the literature. Second, the study evaluates the effects of critical team development aspects that have not been previously addressed in the literature. Third, this study provides proscriptive insights for the improved management of offshore software development project teams. In the following sections we first review the literature on social capital and social interdependence theory and then build hypotheses based upon the literature.

Theoretical background

Social interdependence theory has emerged and presented a conceptual structure to understand cohesion in groups. When interdependence exists, such as in ISD project teams, group members can take action in ways that relate to the actions of others (Johnson & Johnson, 2005). The basic presumption of social interdependence theory is that the type of interdependence structured in a situation determines how individuals interact with each other, which, in turn, determines results. When approached positively, interdependence tends to result in cooperation and subsequently task cohesion (Tziner, 1982). In the context of ISD projects, interdependence is likely to be present when each member’s successful completion of individual tasks is based upon the overall team’s effort/contribution (Dreuer 2007). In this context, individual team members are likely to be motivated and committed to cooperate in order to assist in the completion of their individual tasks. Thus, task cohesion is increased by providing members with complex tasks to the extent that the group successfully accomplishes its goal by seeking cooperation to complete them (Man and Lam 2003). In numerous studies, task cohesion significantly led to an increase in communication, coordination and performance outcomes (Campion, Medsker, & Higgs, 1993).

Social capital includes; shared language, trust, shared norms and identification with other individuals in the network (Cabrera and Cabrera, 2005). Katzenback and Smith (1993) found that successful teams were composed of members who have complementary skills, shared values, common purposes and were able to work in unison to achieve goals. Successful teams were found to invest time in rapport building, exploring and sharing information and were in agreement on shared activities. Social capital within teams,
characterized by high levels of trust and friendship, encourages people to engage in social exchange and cooperative interaction, which involves, e.g. relying on others, asking for help, having spontaneous conversations and unplanned meetings, and sharing information, knowledge and resources (Lee et al., 2005). Social interactions and rapport lead to a more frequent and intense knowledge exchange behavior (Larson, 1992).

Task cohesion has been found to useful in improving a multitude of individual and group outcomes such as learning and work related satisfaction. (Carron and Hausenblas 1998, Filho et al., 2015). Individual team members feel positive about the project work when the team interacts closely, and performance is satisfying. Individual team members find intrinsic and extrinsic satisfaction when the team cohesion facilitates the positive project outcomes (Tekleab et al, 2009).

From the perspective of social interdependence and social capital theories, we argue that task complexity and rapport improve task cohesion that, in turn, facilitates team members’ learning and work satisfaction in the outsourcing context. Figure 1 shows the proposed research model.

**Hypothesis**

Prior studies have suggested that increased task complexity have often been associated with higher group performance (Man and Lam 2003). Compared with simple tasks, complex tasks relate to a large number of distinct actions and information cues to be processed, a high demand for coordination of various task inputs and outputs and a high likelihood of changes in the process of task execution (Wood 1986). Software development can be characterized as complex tasks because of its ambiguity, difficulty and unstructured problems. The high level of task complexity in software development often requires team members to pool the resources and expertise and demand a high level of cognitive processing of multiple team members to tackle the problems. As a result, team members increasingly perceive task interdependence among team members and believe their work is intrinsically exciting, challenging and meaningful. Complex tasks often require greater group interaction, coordination, and interdependence (Man and Lam 2003). As team members perceive high task complexity, team members tend to interact, embrace others’ thoughts, integrate different inputs to create feasible solutions, and stick together to make a unique contribution. Hence we believe that,

**H1:** Task complexity will positively improve task cohesion among team members.

A group establishes a good rapport when team members understand each other’s belief, feelings, and values, enjoy interacting with other group members, and perceive a close personal connection with others (Gremler and Gwinner 2000). A group with a good rapport significantly share and process a large amount of information (Tomasi et al. 2015). Rapport increases team members’ shared understanding of the situation and problems and approaches the team adopts. The positive perception of teamwork and appreciation of team members will enhance the team’s shared commitment to the teams’ tasks. Hence, it is hypothesized that

**H2:** Rapport will positively improve task cohesion among team members.

The software development team has a high level of task cohesion when the team members bond together and remain united to achieve the software development tasks (Bahli and Büyükkurt, 2005; Carlessand De Paola 2000). Task cohesion stimulates the team processes such as team mental model and collective efficiency and then lead to individual and group outcomes. (Carron and Hausenblas 1998, Filho et al., 2015). Past studies showed that individuals perform better on learning tasks if they are in high cohesion groups than in low cohesion groups (Lott and Lott 1966). Individuals with highly liked others tend to learn better in the favorable social context (i.e. in the group) than individual learners (Lou et al., 2001). Hence our hypothesis:

**H3:** Task cohesion will positively improve learning.

Past research has consistently found that group cohesion positively contributes to group performance (Beal et al. 2003, Man and Lam 2003, Wood, Polek and Aiken 1985). Task cohesion applies its effect on group performance by increasing group coordination and enhances the group operation and outcomes (Knouse 2006). Individual team members feel positive about the project work when the team interacts...
closely, and project performance is satisfying. Individual team members find intrinsic and extrinsic satisfaction when task cohesion facilitates the positive project outcomes (Picazo et al. 2015). Hence, H4: Task cohesion will positively improve work satisfaction.

Methodology and discussion

All the construct measures will be adopted from the existing literature. Team size, uncertainty and project duration will be used as control variables. The study will employ a survey methodology to test the research model and all hypotheses. An instrument package consisting of a cover letter and questionnaire will be sent to 500 randomly selected IS team members employed by outsourcing vendors in India. The vendors will be randomly selected from the database of the National Association of Software and Service Companies, which is India’s premier trade body for the IT software and services industry. The HR department in the vendor organizations will be contacted to provide the contact details of the respondents. The cover letter will indicate the purpose of the study and inform the respondents that their responses would be kept confidential. Participants will be requested to sign a consent form and return the questionnaire by mail after completion. The sampling process will follow recent studies that collect data from one member in each team to increase the response rate and sample size. IS outsourcing companies are selected because, in the outsourcing context, a project-based organization develops the system for clients, a team is formed for a specific project, and team members frequently work with each other in an internationally distributed manner.

Although task complexity and rapport are both important issues in organization studies, little attention is paid to how these play a role in improving learning and work related satisfaction in outsourced ISD teams. Outsourcing context introduces spatial, temporal and cultural challenges in team. The results of this study will validate our assertion that improving rapport and structuring complex tasks among team members should improve learning and satisfaction. Project managers may find it useful to introduce techniques and practices which can build rapport and structure complexity in their team. We propose a basic model of the relationships between these critical variables and task cohesion and attempt to address whether these have beneficial impact on work satisfaction and learning.

References


Exploring the role of task complexity and rapport


