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A Conflict Model for Information Systems Development

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Abstract

Better management of the conflicts that arise during the development and implementation of IS applications can significantly contribute to the eventual success of these systems. Several researchers have studied such conflicts within an information system development context. However, so far, past research has only considered variables reflecting interpersonal processes as antecedents of ISD conflicts. The research proposed here extends this work by incorporating variables along two new dimensions (contextual and individual characteristics) to the existing conflict models. Adopting a structural model of conflict, the proposed research delineates relationships between conflict and participation, influence, involvement, type A personality, and project risk. In addition, it intends to develop and validate a measure of ISD conflict incorporating three dimensions of the construct: interdependence, interference and divergence. The expected contributions of the study are conceptual, methodological and practical.

Introduction

Despite advances in software development tools and management techniques, information system development (ISD) projects continue to fail. An important cause of many of these failures is the conflicts that arise during system development and their poor management (Barki and Hartwick, 1994, Robey & al., 1989, 1993). Their proper management becomes a necessary condition for the successful implementation of many ISD projects. The IS conflict research has three limitations. First, the independent variables (participation and influence) proposed in the research models explain only a small proportion of the variance in conflict, indicating the need to identify other salient variables that may lead to conflicts in ISD. Second, according to Kolb and Putnam (1992), conflicts depend not only on interpersonal processes (participation and influence), but also on the context and on the characteristics of the individual involved in the conflict situation. Finally, past IS research on ISD conflicts has relied on the relatively weak measures of conflicts with poor psychometric characteristics. The purpose of the study described here is to address these three weaknesses.

The Conflict Model of the Study

The structural model of conflict (Thomas, 1976; Rondeau, 1990) specifies the conditions that influence the behavior the various parties involved during a conflict episode and establishes the possible links between these conditions. Three conditions of this model relevant to ISD conflicts are examined here: actors predispositions, their incentive structure, and the rules and procedures governing and constraining their behavior.

Incentive Structures

In IS, conflicts occurring in ISD and their resolutions have been studied by Robey & al. (1982, 1989, 1993) and Barki & Hartwick (1994). These models identify participation and influence as the main causes of ISD conflicts. The incentive structure refers to factors that affect the perception a party has of itself and of the other party. Rondeau (1990) identifies the actors strategic role and their dependence on others as the two incentive structure factors. The behaviors, activities and assignments related to participation and influence describe individuals' roles and positions within an ISD project team. As such, both participation and influence can be perceived as two key factors pertaining to the incentive structure in the structural model of conflict, with both factors leading to greater conflict. Since Robey's and Barki's results explain a small proportion of the variance in conflict, an examination of other potential causes of conflicts (in addition to participation and influence) seems to be in order.

Rules and Procedures

The rules and procedures in the structural model of conflict are formal elements that constrain the parties' actions in a specific way. However, rules and procedures are also elements reflecting the context within which an ISD proceeds. According to Kolb and Putnam (1992), potential causes of conflicts can be identified through an analysis of the conflict arena. Further, Lewin (1951) has identified the contextual environment as being one of the key causes of conflicts in organizations. In an ISD context, this environment can be described as a web of conditions and factors influencing development activities (Lyytinen, 1987). The project risk factors identified by Barki, Rivard and Talbot (1993), provide a comprehensive list of the contextual variables relevant to ISD environments. An examination of the concept of risk, as defined and assessed by Barki and al. (1993), indicates that this notion can provide a global construct useful as a factor reflecting the overall context of an ISD process, and

as such, is included in the study model. Barki, Rivard and Talbot (1994) found that as project risk increased the level of participation decreased. Accordingly, risk is hypothesized to have a negative relationship with participation. In addition, risky projects are also hypothesized to lead to more conflicts, based on the idea that such projects tend to generate increased stress and pressure in the individuals involved.

Predisposition

Predispositions are stable traits of personality (Rondeau, 1990). Few studies have investigated individual characteristics within an ISD conflict perspective. Thus, the potential relationship that may exist between such characteristics and the emergence of ISD conflicts remains to be determined. In contrast, the organizational literature of conflicts provides indications as to which individual characteristics may be relevant to ISD conflicts. Among there, Type A Behavior appears particularly relevant to ISD conflicts. Research in psychology suggests that individual with a Type A Behavior Pattern are impatient and irritable (Glass, 1977) and they strongly want to control situations (Miller & al, 1985). These findings strongly suggest that such predispositions that Type A individuals have may lead to the emergence of conflicts in ISD. A second important individual predisposition salient to ISD conflicts is team member involvement. Involvement refers to an individual's psychological state reflecting the importance and relevance of the project to him or her (Barki & Hartwick, 1989). As individuals become more involved with an ISD project, their opinions and attitudes regarding how the project ought to be designed and managed may become more hardened and inflexible, thereby leading to the emergence of further differences and disagreements.

Thus, according to the proposed model, Project Risk, Type A Behavior, Influence, Involvement, and Participation are direct antecedents of ISD conflicts. In turn, Type A Behavior and Participation lead to Involvement, while Type A behavior and Risk are antecedents of Participaiton. Finally, Participation is hypothesized to lead to influence.

Conflict Measurement

A cross-sectional field study of approximately 100 ISD projects is actually conducted to test the conflict model and to validate the conflict measure. The conflict instrument has been developed to measure conflicts from a team member perspective. The starting point in the development of this measure is the three dimensions of the conflict definition proposed by Barki & Hartwick (1994) : divergence, interference, and interdependence.

Divergence is measured through an assessment of its external manifestations (Brown & Day, 1981). Its operationalization is expressed in frequency and intensity, and the relative importance of the subject matter about how the divergence exists. *Interference* is a verbal or written contradictory. its purpose is to modify the course of actions. The interference measure has to be compatible with the divergence measure in terms of the subject matter. *Interdependence* is a perceptual measure from the team member's perspective. The three dimensions of interdependence are: degree, resource, and critical factors (Kiggundu, 1983). The degree dimensions corresponds to the extent the task is connected to other related tasks. The resource dimension expresses the extent to which resources are exchanged between two independent tasks. The critical dimensions reflects the extent to which the accomplishment of one task (performed by one of the parties) is critical to the accomplishment of the other party's task.

In order to develop a measure of conflict reflecting the above conceptualization, thirteen key ISD issues and activities were identified (Kezsbom, 1992). Subsequently, questionnaire items for assessing divergence and interference with respect to each of the thirteen issues were developed. To assess divergence, three questions (assessing frequency, intensity, and importance) are used for each one of the thirteen issues. To assess interference one question per issue was developed, asking the presence or absence of interference with respect to each issue. Finally, to assess interdependence, nine items were used based on Kiggundu (1983) and Wybo (1993).

Conclusion

This present research aims to generate empirical evidence on the antecedents of ISD conflicts from an individual perspective. The proposed study is expected to yield several contributions:

- A conceptual contribution. An improved conflict model that provides a better understanding of ISD conflicts.
- A methodological contribution. A new conflict measure that reflects the multidimensional nature of the construct and its validation through a nomological web that corresponds to the proposed model.
- A practical contribution. By offering practitioners a new causal model and a new instruments to measure conflict, the study will enable them to better understand and anticipate ISD conflicts in the future.

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