The Impacts of Program Goal Ambiguity on Inter-team Integrative Conflict Management during IT Program Implementation: Theory of Controversy

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Abstract

Program management is suited to reduce ambiguity, which is when large numbers of possible solutions and stakeholders present no clear path to defined business goals. The purpose of this study is to examine the effects of program goal ambiguity on inter-team integrative conflict management during IT program implementation. Specifically, we probe the moderating role of goal ambiguity on the relationships among goal interdependence, integrative conflict management and program performance achievement. Based on the results with 120 IT programs, our findings confirm goal interdependence has positive influence on integrative conflict management, which in turn to influence program performance achievement positively and goal ambiguity has significant moderating effects.

1. Introduction

System implementation employs project structures as an effective management process, and has done so for many decades. However, organizations need to manage multiple projects that have interactive complexities of competing interests of multiple stakeholders [9]. Program management assembles independent projects into a collective framework by grouping related projects together and centrally managing resources to achieve overall goals and deliver value [2]. One of the major characteristics of a program is achieving common goals. In contrast to project, program involves the management of multiple deliveries rather than single delivery [31]. The common goals are not often expected to be achieved by individual projects delivery on their own goals [39].

Effective management of a program requires coordination and cooperation bridge the individual projects [28]. Unfortunately, the forced interdependencies of limited resources and conflicting goals across projects in a program have the potential to decrease essential cooperation activities. Related projects in a program should be managed in a coordinated way to achieve a common goal [5], or to extract benefits which would not be realized if they were managed independently. Chang [5] further recognized a shared understanding of IT program goals and commitment to accomplish the goals by key program members are the necessary conditions for effective IT program implementation.

The implementation of a large-scale IT commonly changes the existing business process and reallocates organizational resources, often causing one functional department to compete with opposite parties to maximize their relative advantage [12]. Therefore, conflicts management among projects within a program is a key issue that is fundamental to reach program goals. Jiang et al. [17] state integrative conflict management yield agreement on conflicting ideas and in turn improve IT program performance through the means agreement and commitment. Although integrative conflict management is considered critical to program success, the effect of solution-orientation behaviors would be associated and variance with goal congruity among members performance [38] or increased participation [24]. Therefore, the contribution of integrative conflict management in IT program is partly dependent on its situational conditions and characteristics.

Drawing on theory of controversy, controversy exists when team members have different interpretations when solving a problem or reaching an integrative solution [19]. Goal ambiguity is a critical condition in theory of controversy, which inherently implies team members bring different interpretations to their teams and these differences are the primary source to cause conceptual conflicts. Goal becomes ambiguous when invites a number of

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different interpretations. The underlying theoretical assumptions of the conflict resolution process are that individuals have an initial interpretations and conclusions when encountered with a decision. However, when individuals are encountered with other individuals’ conclusions that are incompatible to their own, these differences inevitably lead to conflict. This conflict arouses a cognitive dissonance among individuals, making them question each other for redeveloping a new solution [19].

Traditional project management is limited to low ambiguity situations where clear goals have been identified in the initial stage, while program management is a methodology that enables organizations to deal with increased ambiguity [17]. Program management is well suited to reduce ambiguity, which is when large numbers of possible solutions and stakeholders present no clear path to defined business goals [17]. Therefore, the program goal ambiguity is a unique program characteristics distinguished from projects. Unfortunately, its impact on conflict management style in IT program implementation has been overlooked in the IS literature.

The objective of this study is, therefore, to examine the effects of program goal ambiguity on inter-team integrative conflict management during IT program implementation. Based on Jiang et al. [17]’s work, we probe the key situational factor, goal ambiguity, which condition or influence the success of IT program.

2. Backgrounds

2.1. Inter-team Conflict (Program Conflict)

Conflict, the so-called “the perception of differences of interests among people” [36], has been part of our daily lives- inevitable, invisible and intricate among human beings. Frequently, conflict would occur when there any incompatibility exists between two or more entities on their way reaching their goals [33]. In the IS literature, conflicts have traditionally been studied under different settings, including ISD teams [3], virtual teams [21], and the applications of group decision making.

Recently the term “program conflict” referring to the phenomenon of inter-project task or goal conflicts has been examined in the literature. To reach the program goal, projects under the program need to work together to accomplish the program delivery [4]; however, due to the disagreements among project teams toward the task-related issues for accomplishing the program goals, resources sharing/allocation, or individual project/program goals conflicts, the conflicts among these interdependent projects within a program are often unavoidable. As a result, in order to manage and implement a group of related projects managed effectively to obtain benefits and control not available from managing them individually, many “cooperative” management interventions have been suggested including coordination [7], collective mind between user and developer [14], collaboration ([6], and risk management [16].

2.2. Theory of Controversy

The theory of constructive controversy proposed by Johnson & Johnson [18] as an effective method to resolve conflicts and to increase the quality of decision making. Constructive controversy theory is based on Deutsch’s social interdependence theory [10] and cognitive development theories and involves what Aristotle called deliberate discourse, which represents a thinking-thoroughly process among people by discussing the advantages and disadvantages of proposed actions, aiming at synthesizing novel solutions to meet the needs of all the parties involved [20]. That is, different from other conflict management methods like dominating [33], distributive [23] or avoiding [3], constructive controversy theory aims to provide not only just a solution to resolve the conflict, but also to reach a better conclusion that satisfies every party who joins the conflict to reach a consensus toward the issue which they used to be disagreed with each other [18]. In the literature, different terms are used in describing the conflict management approach based upon the constructive controversy theory. Among others, the integrative conflict management is the most widely accepted [20].

Integrative conflict management is defined as where parties involved in the conflict, all the parties involved are making attempts to identify and achieve novel outcomes that are mutually satisfying to all the parties [15]. Other terms adopted in the literature include the integrating conflict handling [33], problem solving method [3] and integrative behavior ([23], collaborative conflict management [29], cooperative, solution oriented (win-win) [35].

Constructive controversy theorists suggest that goal interdependence would be a key factor leading conflicting parties to adopt the integrative conflict management approach [35]. However, this assertion has not been empirically examined in the IS literature [21, 29].
2.3. Goal Interdependence

Social interdependence theory is a theory describing how people’s interactions affected by structured goals and thus created the outcomes [19]. Social interdependence exists when the outcomes of individuals are affected by each other’s actions. When a social interdependence exists, human actions would be triggered which would lead into relevant human psychological processes, then triggered the group interaction, and finally, how group interact to their goal would achieve certain outcomes.

Social interdependence explain the process how the group goal setting could affect goal achievement through interdependence [19]. Generally, past studies show that people who work within a social interdependence environment will act effectively, which lead to positive cathexis, substitutability, and inducibility that trigger promotive social skills and group process with a better outcome achieved [19].

Goal interdependence is a specific type of social interdependence, which emphasizes on individuals perceive that they can achieve their goal if and only if the other team members achieve theirs [19]. Goal interdependence induces individuals with controversy more open-minded listening to the opposing positions and greater motivation to hear more about the opposing parties’ disputations, and the reaching of more integrated solutions incorporated with different conclusions [19].

2.4. Goal Ambiguity

Individual work motivation and task performance will be affected by goals. Goal-setting theory state that individual motivation and performance increase when goal is specificity and reasonably difficult [22]. Goal-setting theorists apply this statement to the organizational level, and find that organizational performance is improved by setting specific organizational goals. They explain this is because individuals are more likely to take notice of goal discussions and to be committed to the goal in the presence of specific organizational goals [34].

In goal-setting literature, goal ambiguity has been widely investigated by public management and political science researchers (Chun and Rainey, 2005). They explain the main reasons to cause goal ambiguity are (1) the lack of clear profit indicators, (2) intervention from diverse stakeholders, and (3) conflicting interest. The stream of empirical studies regarding to organizational goal ambiguity focused on the antecedents and consequences. They reported that organizational environments such as competition and complexity increase the different levels of organizational goal ambiguity [8]. On the other side, organizational structure such as less centralization and more flat communication will decrease goal ambiguity [27].

Regarding the consequences of goal ambiguity, researchers find that goal ambiguity generally has negative relationship with organizational performance and individual work attitudes. However, some researchers have suggested negative effects of clear goals and positive effects of ambiguous goals on performance. For example, a clear and narrowly focused goal leads individuals to neglect important but unclear goals, which in turn to reduce organizational performance [26]. An ambiguous goal facilitates and tolerates the communication and discussion among different parties, and provides learning opportunities for them [25], making organizational goals are more flexible and reflect the current situation of the organization.

This study refers IT program goal loses clear meaning and becomes ambiguous when it invites a number of different interpretations. This definition of goal ambiguity is consistent with some previous conceptions of the construct [22]. Controversy exists when team members have opposing interpretations, preferences or approaches when solving a problem or reaching an integrative solution [37]. The underlying theoretical assumptions of the process are that individuals have an initial understanding and conclusion when encountered with a problem or decision, but when individuals are encountered with other individuals’ conclusions that are opposed to their own; this controversy arouses a conceptual conflict, making them question each other for redeveloping a new agreement [1].

3. Research model and hypotheses

The central constructs of the research model are goal interdependence, goal ambiguity, and integrative conflict management. In the proposed model, integrative conflict management refers to the when encountering inter-project team conflicts within an IT program, the extent of project managers are willing to solve the conflict together and consider the program as the whole, aiming to achieve the program goals instead of their own projects. Goal interdependence refers to the extent to which each project’s goal is dependent on the others.

Based upon theory of controversy, we proposed that goal interdependence would lead to integrative conflict management approach among project managers within the program. We argue that the
level of program goal ambiguity would moderate the relationship between goal interdependence and integrative conflict management, and also the relationship between integrative conflict management and program performance.

Integrative conflict management is likely to predict program performance [3]. In Miranda & Bostrom [23] indicated that integrative conflict management attempts to identify and achieve outcomes that are mutually satisfying to both parties. Barki & Hartwick [3] suggested that integrative conflict management method (problem-solving) is an effective way on handling intra-team conflicts. Nevertheless, Jiang, et al. [17] suggested that integrative conflict management was also an effective way for inter-team conflict resolution because it can successfully arouse goal commitment and delivery means consensus to deliver the outcomes successfully. That is, the integrative conflict management approach is likely to enhance the levels of commitment among parties involved on the overall goals accomplishment as well as the consensus on the solutions and resources for accomplishing each individual’s projects. Therefore, we expect:

Hypthesis1: Integrative conflict management positively affects program performance

An important dimension of goal setting in the program is goal interdependence. In fact, cooperative goal interdependence is an important antecedent for cooperative behaviors among parties involved [20]. Goal interdependence may increase the adoption of collaboration in conflict management, since projects under the program all have the same program goal to complete and it is only the completion of other projects’ goals, their individual project goals can be achieved. Therefore, based upon the theory of controversy, project managers under the same program with a high level of goal interdependence among other projects are more willing to cooperate to solve problems in order to reach the program goal when facing program conflict [17]. Therefore, we expect:

Hypothesis2: Goal interdependence positively affects integrative conflict management

Goal ambiguity is seen as fostering to conflicting interests among projects. However, different projects holding conflicting interests who work within an IT program must require projects to reach integrative solutions in order to achieve the common goal. To develop a mutually agreeable solution, projects should use integrative conflict management, because it encourages projects involved with more cooperative behaviors to derive a common solution by synthesizing diversity interests and information [32]. Therefore, we expect:

Hypothesis3a: Goal ambiguity positively affects the integrative conflict management

Structuring goal interdependence will tend to foster team member openly discuss the rebuttals; including taking diverse perspectives and exchanging opposite ideas, the program goal is discussed from all sides with all available information. However, in IT program, different possible interests for complex IT implementation issues are developed by individual projects assigned to advocate for each of the interests, diversity self-interests is difficult to explain and communicate among projects if they are often linked by mutual interventions in a specific program goal. Goals ambiguous reduce interventions and constrains from a narrowly focused goal and increase project autonomy, it facilitates meaningful communication among members and provides opportunities for them to understand common interests [25]. In this regard, goal interdependence induce different projects to increase shared responsibilities and thus more likely to engage in open-minded discussions; they try to express their various interests directly, and combine their interests into an integrative solution to solve the underlying problem for mutual benefit [37]. Therefore, we expect:

Hypothesis3b: the positive relationship between goal interdependence and integrative conflict management strengthen when the IT program with a higher level of goal ambiguity.

When program goal allows leeway for interpretation, it will create misunderstanding in team members and cause them to lose the final goal. IT program must work toward a common goal in order to be successful. Therefore, extreme effort must be made to reconcile different interpretations for the development of clearly direction, which makes the integrative conflict management more important. The integration of conflicts has been found to lead to
greater team-level achievement such as higher quality problem solving, group decision making, and team effectiveness as well as other relevant outcomes on the individual level such as cognitive reasoning and perspective taking, and interpersonal level such as social support [19].

Goal clarity in directing IT program to establish individual project accountability and meeting the expectations of stakeholders. While goal ambiguity makes IT program more broadly defined and permit the individual projects to interpret program goal to fit their own interests. The benefits of flexible adjustments on program goal will be realized only when individual projects can expressing their own interpretations to opposing parties, receiving the presentation of the opposing parties, and developing a new reorganized solution by integrating various interests. Without managing conflict as to the integration of their initial interpretations of program goal, the existence of goal ambiguity could cause goal incongruence in IT implementation, and allowed individual projects to use this situation for the benefit of their own interests, which in turn to decrease program performance. Therefore, we expect:

Hypothesis 3c: the positive relationship between integrative conflict management and program performance achievement strengthen when the IT program with a higher level of goal ambiguity.

4. Methodology

Goal Interdependence — the extent to which project teams believe they are assigned group goals and that achievement of their unique goal impacts the achievement of overall goals or goals of the other teams, was assessed by 3 items [30]. Integrative Conflict Management — the extent to how parties involved in the conflict make attempts to identify and achieve outcomes that are mutually satisfying to both parties, was accessed by 4 items [15]. Goal ambiguity — Program goal loses clear meaning and becomes ambiguous when it invites a number of different interpretations. This definition of goal ambiguity is consistent with some previous conceptions of the construct [22]. Program Performance — the extent to which the program team accomplished the desired result, was accessed by 4 items [13].

To empirically validate our hypothesis, we collected data from randomly selected companies from Taiwanese top 1000 companies. For those willing to participate, an appointment was made for an advance visit. The contact person identified key informants in her/his IT program. There were total 120 participants from different kind of industries participated in this round survey. Due to the incompleteness 3 respondents’ answers are not used in our analysis.

5. Data analysis

In this study, we use SmartPLS to analyze our data and results are shown below. Table 1 shows the loading of each item with composite reliability (CR), Cronbach’s alpha (CA) and Average Variance Extracted (AVE) of each construct. Item loading can be used to access individual item reliability and a high loading implies the shared variance between constructs is higher than error variance. Item loading higher than 0.7 is acceptable while item loading lower than 0.5 should be dropped. Convergent validity can be examined by AVE, which should be higher than 0.5 [11]. Construct reliability can be examined by Cronbach’s alpha, which should be larger than 0.7 and Composite reliability should be higher than 0.7.

<table>
<thead>
<tr>
<th>Cross-loadings</th>
<th>ICM</th>
<th>PP</th>
<th>GI</th>
<th>DI</th>
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<tr>
<td>ICM1</td>
<td>0.820</td>
<td>0.392</td>
<td>0.407</td>
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<tr>
<td>ICM2</td>
<td>0.879</td>
<td>0.374</td>
<td>0.373</td>
<td>0.209</td>
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<tr>
<td>ICM3</td>
<td>0.894</td>
<td>0.407</td>
<td>0.424</td>
<td>0.198</td>
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<tr>
<td>ICM4</td>
<td>0.864</td>
<td>0.392</td>
<td>0.386</td>
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<tr>
<td>PP1</td>
<td>0.411</td>
<td>0.926</td>
<td>0.497</td>
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<tr>
<td>PP2</td>
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<td>0.469</td>
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<tr>
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<td>0.880</td>
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<tr>
<td>GI2</td>
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<td>0.311</td>
<td>0.832</td>
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<tr>
<td>GI3</td>
<td>0.461</td>
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<tr>
<td>GA1</td>
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<tr>
<td>GA2</td>
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<tr>
<td>GA3</td>
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<td>-0.075</td>
<td>-0.036</td>
<td>0.861</td>
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<tr>
<td>GA4</td>
<td>0.107</td>
<td>-0.04</td>
<td>0.042</td>
<td>0.861</td>
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</table>

<table>
<thead>
<tr>
<th>Reliability and AVE</th>
<th>ICM</th>
<th>PP</th>
<th>GI</th>
<th>DI</th>
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<tbody>
<tr>
<td>CR</td>
<td>0.922</td>
<td>0.960</td>
<td>0.893</td>
<td>0.887</td>
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<tr>
<td>CA</td>
<td>0.887</td>
<td>0.944</td>
<td>0.821</td>
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<td>AVE</td>
<td>0.748</td>
<td>0.857</td>
<td>0.736</td>
<td>0.663</td>
</tr>
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</table>

ICM = Integrative Conflict Management; PP = Program Performance; GI = Goal Interdependence; GA = Goal Ambiguity
Table 2 shows the correlation table between each latent variable whose diagonal numbers are the square roots of AVE. With respect to discriminant validity, the square root of AVE for each variable should be higher than all inter-construct correlation coefficients with the variable and the correlation between pairs of constructs should be below 0.80 [11]. Table 2 shows these values are met.

Table 2 Discriminant Validity

<table>
<thead>
<tr>
<th></th>
<th>ICM</th>
<th>PP</th>
<th>GI</th>
<th>DI</th>
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</thead>
<tbody>
<tr>
<td>ICM</td>
<td>0.865</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PP</td>
<td>0.452</td>
<td>0.926</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GI</td>
<td>0.459</td>
<td>0.487</td>
<td>0.858</td>
<td></td>
</tr>
<tr>
<td>DI</td>
<td>0.229</td>
<td>0.030</td>
<td>0.116</td>
<td>0.814</td>
</tr>
</tbody>
</table>

In PLS path analysis, the path examining the relationship between integrative conflict management and program performance was significant (path coefficient = .466, H1 is supported). Further, the path shows the relationship between goal interdependence and integrative conflict management was significant (path coefficient = 0.42, H2 is supported). Consistent with the theory of controversy, the results show that positive goal interdependence is significantly related to the integrative conflict management approached within the program.

Goal ambiguity has been proved to moderate the effect of goal interdependence on integrative conflict management (path coefficient = 0.13, H3b is supported), and also moderate the effect of integrative conflict management on program performance achievement (path coefficient = 0.26, H3c is supported). Furthermore, the result confirmed that goal ambiguity is positively associated with integrative conflict management (path coefficient = 0.20, H3a is supported).

To plot the interaction effect in H3b and H3c, we took the values of two standard deviation which are below and above the mean of goal ambiguity. The plots of the interaction are depicted in Figure 3 and 4. Figure 3 shows the relationship between goal interdependence and integrative conflict management is depending on the level of goal ambiguity. The results reveals goal interdependence has stronger effect on integrative conflict management when goal is ambiguity. Figure 4 shows the relationship between integrative conflict management and program performance is depending on the level of goal ambiguity. Integrative conflict management in itself does not seem to have significant effect on program performance when goal is clearly defined. However, this relationship is positive and significant when goal is highly ambiguity.
6. Discussions

This study provides understandings to theory of controversy. While the theory of controversy posits the important of integrative conflict management as a way to increase team performance, our findings suggest that IT program is able to achieve effectiveness if it employing integrative conflict management approaches. The positive influence of integrative conflict management on program performance achievement is stronger particularly when IT program operate within a highly goal ambiguity situation. Integrative conflict management is significantly influenced by goal interdependence as interdependences require the shared responsibilities to ensure a smooth transition between activities of opposing parties [17]. This relationship is also stronger particularly when IT program operate within a highly goal ambiguity situation. The study results suggest that goal ambiguity is critical to the employment of integrative conflict management.

According to Jiang et al. [17]’s work, integrative conflict management is an one of the most important mechanisms to IT program success because it promote commitment toward overall program goals and reach an agreement on the final goal. However, their findings are unable to explain why integrative conflict management is associated with the IT program success. Our results not only confirm their findings on the relationship between integrative conflict management and program goal achievement, but also advance theory of controversy in the context of IT program by providing empirical evidence on the moderated role of goal ambiguity. When IT program goal is ambiguous, integrative conflict management becomes relatively important for program to pursue performance, because it involves cooperation at all individual projects to develop a common ground where self-interests and common interests can be realigned and reorganized, and create a final program goal for resolving concerns and guiding IT program toward success.

Consistent with Jiang et al. [17]’s work, the results suggest that goal interdependence is an essential program structure to enhance projects have a greater level of involvement in integrative conflict management. Projects in a cooperative setting want each other to pursue their goals effectively, for the other’s effectiveness helps all of them reach their goals [17]. Further, goal interdependence becomes more critical when goal is increasingly ambiguous. Goal ambiguity leads to escalation of a conflict, which makes resolution more difficult, therefore, an integrative method to resolve the conflict is increasingly required.

This study has third managerial implications. First, the interdependence among projects must be managed to ensure the success of IT program. Program managers should arrange a high level of goal interdependence among projects, especially when program goal ambiguity is high. Second, program management need to understand the importance of integrative conflict management. The adoption of integrated conflict management provides necessary supports that foster program commitment and promote common interests in dealing with conflict throughout the IT program. Last, managers should consider the conditions of their program goal ambiguity in structuring goal interdependence and developing integrative conflict management. Program managers should not expect interdependence and integrative conflict management to deliver the same benefits as those that work more effectively when goals are ambiguous.

7. Conclusions

This study advances the understanding of conflict resolution research whereby we adopt theory of controversy and social interdependence theory to examine the relationships among goal interdependence, integrative conflict management and program performance achievement that operate under goal ambiguity conditions. We provide empirical evidence to account for the proposed model. Drawing on theory of controversy and social interdependence theory, we identify: (1) the positive association between goal interdependence and integrative conflict management strengthens when IT program under a high level of goal ambiguity, (2) the positive association between integrative conflict management and program performance achievement strengthens when IT program under a high level of goal ambiguity and (3) goal ambiguity contributes positive influence on integrative conflict management. The study findings provide explanations on why integrative conflict management is critical in IT program and how goal ambiguity affects integrative conflict management.

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9. References


