Leadership Style And Project Teamwork In Project Management Performance: Moderating Effect Of Project Knowledge

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ABSTRACT

Many organizations such as Information and Communication Technology (ICT) Company are seriously considered on their performance of project management. Based on previous studies, there are several factors can influence project management performance (PMP). However, this study compromised several constructs which are transformational leadership, transactional leadership, project teamwork and project knowledge. This study was aim to investigate indicated constructs which can influence PMP. Questionnaires survey was employed and distributed to respondents who work at various positions such as Project Manager and Software Engineer in ICT Company. Final data was collected with 409 respondents and analyzed using Structural Equation Modeling (SEM). Based on analysis result indicated that project teamwork was significantly influence PMP but other constructs were not significant. Meanwhile, test of moderating effects show that project knowledge moderates the relationship of indicated constructs and PMP.

Keywords: Project Management Performance, Transformational Leadership Styles, Transactional Leadership Styles, Project Team, Project Knowledge

Previous studies indicated that most projects do not meet time and budget goals, or fail to satisfy client and organization expectation (Sauser & Eigbe, 2009). One of the contributions to project failure is lack of project knowledge and project leader failed to plan the project properly (Byrd & Turner, 2011). If project leader did not monitor or control the project sufficiently, this can decrease project management performance. Project leader also have responsibility on selecting project team and suggested by previous researcher, the quality of project team can determine project success (Cheney & Lyons, 1994).

Currently, one of the major issues in project leadership is leadership style whereby leadership style is becoming increasingly critical to project success (Yang, Chung-Fah & Kun-Shan, 2001). Project leadership play an important role in the accomplishments of project goals through communication and able to influence project team to accomplish project goals. Therefore, this study was conducted to investigate leadership style construct and project team which can influences project management performance. Two types of leadership style was focus in this study: transformational leadership and transactional leadership.

II LITERATURE REVIEW

This study is conceptualized based on Total Quality Management (TQM). In TQM, management play an important part to ensure process of quality management and project mission and vision stated by organization is improved. One way to ensure the quality of management, both parties (management and employees) must have strong communication and employees work should be rewarded (Juran, 1994). Employees should be sent for training to improve their skills and enhance knowledge and rewarded for their quality improvement efforts. Most of the organization believes that TQM enable them to successful reach their goals and objectives. Moreover, it is able to increase project performance. TQM posited several factors such as leadership, teamwork, customer service and etc. However, TQM does not focus on leadership style. This study is believed that leadership style can influence project management performance.
Leadership style is defined as style on how project manager manage or control the progress of the project (Yang, Chung & Chung-Fah & Kun-Shan, 2001). This element has been revealed to give an impact to project performance in industry (Yang, Chung & Chung-Fah, 2001; Keller, 1992; Kendra & Taplin, 2004). As mentioned on previous paragraph, two types of leadership styles are focus: transformational leadership and transactional leadership. Transformational leadership is refers to leadership style which is able to inspire and motivate project teams in achieving project goals and objectives. Transformational leadership may be a predictor of project performance and this style suits for complex projects (Keller, 1992). Meanwhile, transactional leadership is the style of leader who motivates their employees by giving them a reward. However, for them to get this reward, employees must achieve certain standard and leader expectation. Transactional style was reported by previous study is suitable for simple project (Higgs & Dulewicz, 2004). This study is believed that both maybe can influence project management performance and being adapted by project leader in ICT project.

H1: Transformational leadership style influences PMP
H2: Transactional leadership style influences PMP

Project team is refers to people who works and shares responsibility of project outcome (Hsu & Jiang, 2009). Every member in project teams should be able to share and utilize project information effectively and efficiently. Thus, collaboration and communication among team members is important Yang, Chung & Chung-Fah & Kun-Shan, 2001). To ensure project success, the team members must aware of each other’s expertise and roles and this is significant because project team requires a diversity of knowledge among its members to complete the project (Hsu & Jiang (2009). Nevertheless, they must able to carried out project tasks effectively and meet standard given by project stakeholders. Lack of competency on project team is one of the primary reasons for the failure of ICT project (Liu, Chen, Jiang and Klein, 2010). If team members don’t have recommended skills and experiences on project undergo, it will decrease project performance (Bandura, 1996). Therefore, this study is believed that project team can influences PMP.

H3: Project team influences PMP

A. Project Knowledge and Project Management Performance

In this study, project knowledge is defined as an individual understanding on project undertaking, which is one of the most important resources for both managerial decision making and the competitive advantage of any organization. In project environment, it is important to share project knowledge because it does involve the development of new products and new processes. Sharing project knowledge is important to motivate all the team members to perform their duties well at a similar level (Aurum, Daneshgar & Ward, 2008). Project leader has responsibility to influence his/her teams to ensure the knowledge they gained from project work was preserved and made accessible to others and the knowledge can be useful for future project to improve project management performance. In spite of that, an individual’s knowledge and experiences is important resources for future project because they facilitating innovative and interdisciplinary tasks (Teerajetgul, Chareonngam, & Wethyavivor, 2009). Knowledge also becomes one of the important factors because project leader and team members able to identify potential problems and increasing awareness of project risk (Anantatmula & Kanungo, 2009). Thus, this study believes that knowledge as a moderator can increase the relationship between project factors (leadership and project team) and project management performance.

H4: The factor of knowledge moderates the relationship of transformational leadership and PMP.

B. Research Framework

Fig. 1 shows the research framework of this study. The framework comprises three independent variables (transformational leadership, transactional leadership, and project team) and one independent variable, project management performance. This study was taken project knowledge as a moderator.
III RESEARCH METHODOLOGY

Research methodology was employed in this study is questionnaires survey. The set of questionnaires was constructed based on the literature review and divided into two sections. Section A was included four of demographic questions.

Meanwhile, section B is included three of transformational and transactional leadership questions, three of project team questions and three of PMP questions. The survey questionnaires for section were responded using a 7-point Likert-type scale.

Target population of this study is 800 employees who work at ICT Company in Klang Valley, Malaysia with the position include Project Manager, IT Project Manager, Software Developer, Software Engineer, Systems Analyst, Network Engineer and employees who experienced in project environment. However, only 409 data was obtained. The final questionnaires were distributed by personally visits using simple random sampling after pilot study was run.

IV RESEARCH FINDINGS

Data was analyzed using SPSS and AMOS. Structural Equation Modeling (SEM) was applied to test the correctness of the research framework.

A. Confirmatory Factor Analysis (CFA)

CFA was carried out to test the measurement model. From the CFA results, the construct (or composite) reliability was obtained. As shown in Table 1, all the items was in standardized loading estimates above 0.5 threshold ranging from 0.750 to 0.937. The composite reliabilities (CR) for each construct range from 0.84 to 0.93. The average variance extract (AVE) for each construct range between 0.63 to 0.83 which is greater than 0.5 and thus the cut of values assures that at least 50% or more of the variances in the observed variables are explained by the set of indicators.

<table>
<thead>
<tr>
<th>Constr &amp; Items</th>
<th>Factor Loading</th>
<th>Cronbach’s Alpha</th>
<th>AVE</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactional</td>
<td>T4 0.888</td>
<td>T5 0.925</td>
<td>T6 0.915</td>
<td></td>
</tr>
<tr>
<td>Transformational</td>
<td>T12 0.700</td>
<td>T15 0.926</td>
<td>T16 0.831</td>
<td></td>
</tr>
<tr>
<td>Project Team</td>
<td>Team 18 0.937</td>
<td>Team 19 0.845</td>
<td>Team 20 0.668</td>
<td></td>
</tr>
<tr>
<td>KPIs</td>
<td>KPI 54 0.750</td>
<td>KPI 55 0.788</td>
<td>KPI 57 0.843</td>
<td></td>
</tr>
</tbody>
</table>

B. Cronbach Alpha

Cronbach Alpha was used for the purpose of reliability measurement. The purpose of Cronbach’s Alpha is to find out how well the item in a set positively correlate to one another and the value shows that all the constructs have score alpha value more than 0.5 with range of 0.840 to 0.916. Thus, the scale can be considered reliable. The alpha value was listed in Table 1.

C. Demographic Details

Total of 409 respondents was responded the questionnaires. These questionnaires were distributed by personal visit. The respondents are an employee of IT Company in Klang Valley, Malaysia who has experiences in ICT project. According to the demographic result, most of the respondent was male (340) compare to female (69). Many respondents have experience in managing project almost 10 years with 62.3% of overall. In term of age, 65.8% respondents are between age 25 and 39 years. Thus, the result of the sample shows that respondent is appropriate to answer items for each construct because they fulfill study requirements with enough experience in ICT project development.
D. Modeling Measurement Fits

The correctness of the research model was tested by using structural equation modeling (SEM) method with SPSS-AMOS 18. In doing so, Chi-square test, Root mean square error of approximation (RMSEA), Good fit index (GFI) and Comparative fit index (CFI) was selected.

Chi-Square value is the traditional measure for evaluating overall model fit. The Chi-Square value in this study is 113.952 with 45 degrees of freedom, thus indicating a good fit with the model (a ratio less than 3). Meanwhile, the indices (RMSEA, GFI and CFI) results as shown in Table 2 are at good fit. To conclude, the results showed that our model provides a valid framework for the measurement of project management performance.

Table 2. Indices of Fit and Comments For Model Analysis.

<table>
<thead>
<tr>
<th>Indices in SEM</th>
<th>Default Model</th>
<th>Data fitting of the model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square/Degrees of freedom ratio</td>
<td>113.952/45 = 2.532</td>
<td>Good fit (should be less than 3)</td>
</tr>
<tr>
<td>CFI</td>
<td>.982</td>
<td>Good fit (should be greater than .90)</td>
</tr>
<tr>
<td>RMSEA</td>
<td>.061</td>
<td>Good fit (should be less than .08)</td>
</tr>
<tr>
<td>GFI</td>
<td>.956</td>
<td>Good fit (should be greater than .90)</td>
</tr>
</tbody>
</table>

E. Hypotheses-path Testing

Table 3 shows that the results with respect to the six hypotheses constructed. The SEM analysis indicates that project team is significantly predicting PMP (p-value < 0.05). Thus, H3 was supported. Meanwhile, other hypotheses (H1-H2 and H4-H6) were not supported. Hypotheses H4, H5 and H6 are used to test the moderator effects.

F. Analysis of Moderating Effects

The moderating effect of project knowledge on the model was examined using multi-group procedure. This study split the sample into 2 groups according to the mean score of the knowledge. The mean were defined as high knowledge and low knowledge as shows in Table 4. A two group AMOS model was used subsequently so that it could be determined whether or not there was any significant difference in structural parameters between the high knowledge group and the low knowledge group.

Subsequent analyses identified the specific paths that are impacted by these variables. The relationship between transactional and PMP is negative in high knowledge sample and positive in low knowledge sample but both are non-significant (ϒ[high]= -.040, t = -.658; ϒ[low]= .118, t = .424). Similarly, the relationship between transformational and PMP, whereby both sample is positive and non-significant (ϒ[high]= .090, t = 1.573; ϒ[low]= .359, t = 1.662). The relationship between teamwork and PMP is positive and significant in the sample of high knowledge groups but low knowledge sample was non-significant (ϒ[high]= .283***, t = 3.884; ϒ[low]= .411, t = 1.441).

Test of fitness indices indicated that unconstrained model is significantly better (smaller Chi-Square) than constrained model, indicating that the two group’s coefficient differ. The result of analysis shows that project knowledge was moderate the relationship of leadership styles (transactional and transformational) and PMP based on Chi-Square different between constrained and unconstrained model as shows in Table 4. Similarly, the result also shows strong support for the hypothesis that project knowledge
moderates the relationship between teamwork and PMP. Project team must have sufficient knowledge in ICT project and thus, it will increase the performance of the project. Similarly as leadership styles, project knowledge will help project leader to lead the project more effective. Therefore, all hypotheses (H4-H6) were supported.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Causal Relationship</th>
<th>Constraint Chi-Square</th>
<th>Unconstraint Chi-Square</th>
<th>( \chi^2 ) Difference</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H4</td>
<td>Transactional - PMP</td>
<td>319.8</td>
<td>99</td>
<td>114.1</td>
<td>Supported</td>
</tr>
<tr>
<td>H5</td>
<td>Transformational - PMP</td>
<td>297.4</td>
<td>66</td>
<td>91.72</td>
<td>Supported</td>
</tr>
<tr>
<td>H6</td>
<td>Project Team - PMP</td>
<td>260.4</td>
<td>18</td>
<td>54.67</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Fitness Indices According to The Model Based on Moderator Variable of Interest

<table>
<thead>
<tr>
<th>Model</th>
<th>ChiSq/df</th>
<th>GFI</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unconstrained Model</td>
<td>2.286 (Good fit)</td>
<td>.926GOOD fit</td>
<td>.964GOOD fit</td>
<td>.056GOOD fit</td>
</tr>
<tr>
<td></td>
<td>3.477 (Not in a good fit)</td>
<td>.891Acceptable fit</td>
<td>.930GOOD fit</td>
<td>.078GOOD fit</td>
</tr>
<tr>
<td></td>
<td>3.233 (Not in a good fit)</td>
<td>.896Acceptable fit</td>
<td>.937GOOD fit</td>
<td>.074GOOD fit</td>
</tr>
<tr>
<td></td>
<td>2.831 (Good fit)</td>
<td>.908GOOD fit</td>
<td>.948GOOD fit</td>
<td>.067GOOD fit</td>
</tr>
</tbody>
</table>

V DISCUSSION AND CONCLUSION

The characteristics of ICT project were dynamic and unstructured. If this project was not managed properly, the project might be failed and company may lose their project investment. Therefore, project management skill is required to be adopted by project leader to ensure that ICT project is run successfully and meets client’s expectation. Notwithstanding that, project team also plays an important role in achieving project goals and objectives. Both parties (project leader and project team) must have sufficient knowledge on project undertake because it’s important to ensure that project management performance can be increased. Project leader must able to encourage and monitors project teams. Usually, different styles of leadership are adopts by project leader. In this study focus two types of leadership styles: transactional and transformational.

Previous studies indicated that project factors such as leadership, Project Life Cycle and teamwork are significantly influence PMP (Aurum, Daneshgar & Ward, 2008; Barclay, 2008; Qureshi, Warraich & Hijazi, 2009). However this study was comprised constructs such as transactional leadership, transformational leadership, project team and project knowledge. Based on SEM analysis shows that project team was significantly predicts PMP, but leadership styles (transactional and transformational) were not significantly predicts PMP. Most of the respondents were agreed that they are practicing both of leadership styles when managing their project, but the results shows that this construct was not significant. This is maybe the questionnaires of leadership styles was not really describes leadership styles in ICT project and therefore, it is recommended to be improved for future study. Test of moderating effect shows that project knowledge was moderate the relationship of indicated constructs and PMP because the path of coefficient shows the different between these two groups. However, future study should highlight more on project knowledge and improves on items measurement.

In summary, this study provides empirical evidence and recommends that all constructs should be improved and consider as an important predictor on PMP. Even though the result shows that some of the constructs were not significant but it still important in managing ICT project. Future work should modify some of measurement items and dig out more constructs that are believe influence PMP such as management support. Furthermore, research framework developed in this study can be extended and used to investigate PMP on other types of project such as construction and engineering.

ACKNOWLEDGMENT

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