

Mediating Role of Knowledge Integration: The Effect of Leadership Styles on Enterprise Systems Success

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Abstract—Many studies emphasise the crucial role of leaders in implementing knowledge integration (KI) during the enterprise system (ES) post-implementation phase. However, to date, no studies have provided empirical evidence on the role of KI mechanisms in ES success, especially when managed by leaders with different leadership styles. This paper therefore highlights the empirical evidence on the role of KI as a mediator between ES success and two leadership styles, namely, the transformational leadership style and the transactional leadership style.

Index Terms—knowledge integration, enterprise system post-implementation phase, transformational and transactional leadership styles, enterprise systems success

I. INTRODUCTION

In a systematic review of 50 studies of ES critical success factors, [1] reported that the most critical factors (100% occurrence) occurred because of a lack of management support and commitment. [1] also demonstrated the importance of knowledge in ES, which must be supported by the full commitment of leadership especially in the post-implementation stage. The study by [2] empirically demonstrates the impact of the transformational leadership style on ES success. However, there are other behaviours and styles adopted by organizational leaders [3] and [4] and the role of KI in ES success has also been postulated by many past studies [5]–[8]. This paper therefore fills the gap in knowledge and practice by offering empirically evidence the role of KI as mediator between two leadership styles, namely, the transformational and the transactional leadership style in the ES post-implementation phase.

II. RESEARCH METHOD AND ANALYSIS

Based on [4], [7], [9] and [10], we developed our research model as illustrated in Fig. 1.

Launching from the research model, five hypotheses were developed. Based on previously validated measurement scales, we adapted the multifactor leadership questionnaire (MLQ) [11], IS-impact

measurement model [10] and KI mechanisms' measurement based on [12] and [13] in order to ensure construct validity. Furthermore, to enhance the construct validity, we also conducted an expert review among leaders and IT experts. We used a seven-point scale (from “1-strongly disagree” to “7-strongly agree”) as either a five-point scale or ten-point scale is comparable as analytical tools [14]. We combined two guidelines to develop the survey measurements (i.e. [15] and [16]). In the six organizations that met the criteria and agreed to participate in the research, we disseminated 1,450 surveys to the relevant personnel in charge, together with the university's data collection permission letter, an executive summary of the research and a post-paid envelope for returning the completed surveys. We framed our research at the individual level so the targeted respondents were ES users, who were asked to evaluate the leadership styles of their managers. They were also asked to share their views about the KI practices in their organization and to make an evaluation of the ES they used in their daily tasks. In total, 508 valid survey responses were collected among six companies that had already implemented an ES for more than a year. We employed structural equation modelling (SEM) by using the path modelling SEM (PLS-SEM) approach and the SPSS statistical tool to investigate the underlying relationships between the variables in order to validate our hypotheses. Our unit of analysis was the individual level. We made a systematic evaluation of the PLS-SEM result [16] (p. 97) to measure the reliability and validity of the constructs and evaluate the structural model. Fig. 2 shows the results of the structural model assessment.

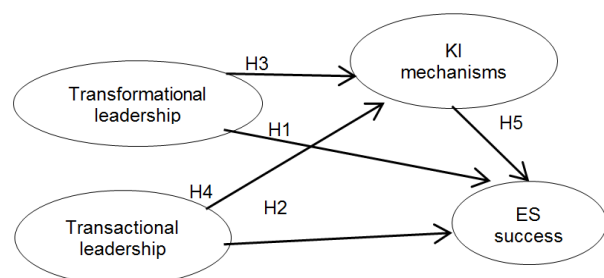
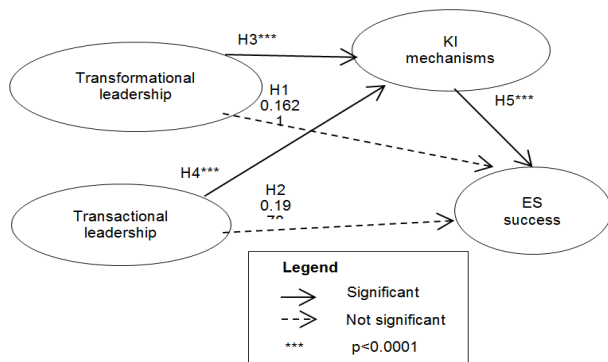


Figure 1. Research model.

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- H1:** Transformational leadership is positively related to ES success dimensions
H2: Transactional leadership is positively related to ES success
H3: Transformational leadership is positively related to the use of KI mechanisms
H4: Transactional leadership is positively related to KI mechanisms
H5: KI mechanisms mediate the relationship between the transactional and transformational leadership styles and ES success

Figure 2. Structural model analysis result – hypotheses test.

As presented in Fig. 2, hypotheses H1 and H2 were not significant. However, all the hypotheses regarding the KI mechanisms as a mediator were supported (i.e. H3, H4 and H5). The analysis of the mediator procedure in the PLS-SEM also proved that KI mechanisms fully mediate both leadership styles (see Fig. 3).

Fig. 3 showed that KI partially mediate transformational leadership with 47.1% of the effect of transformational leadership on ES success explained by KI mechanisms, and 168% of the effect of transactional leadership on ES success explained by KI mechanisms, thus showed KI fully mediated transactional leadership. An analysis of the responses regarding which leadership styles were most dominant in the investigated organizations indicated 75.8% of the respondents agree their leaders practised the transformational leadership and 74.7% for transactional leadership.

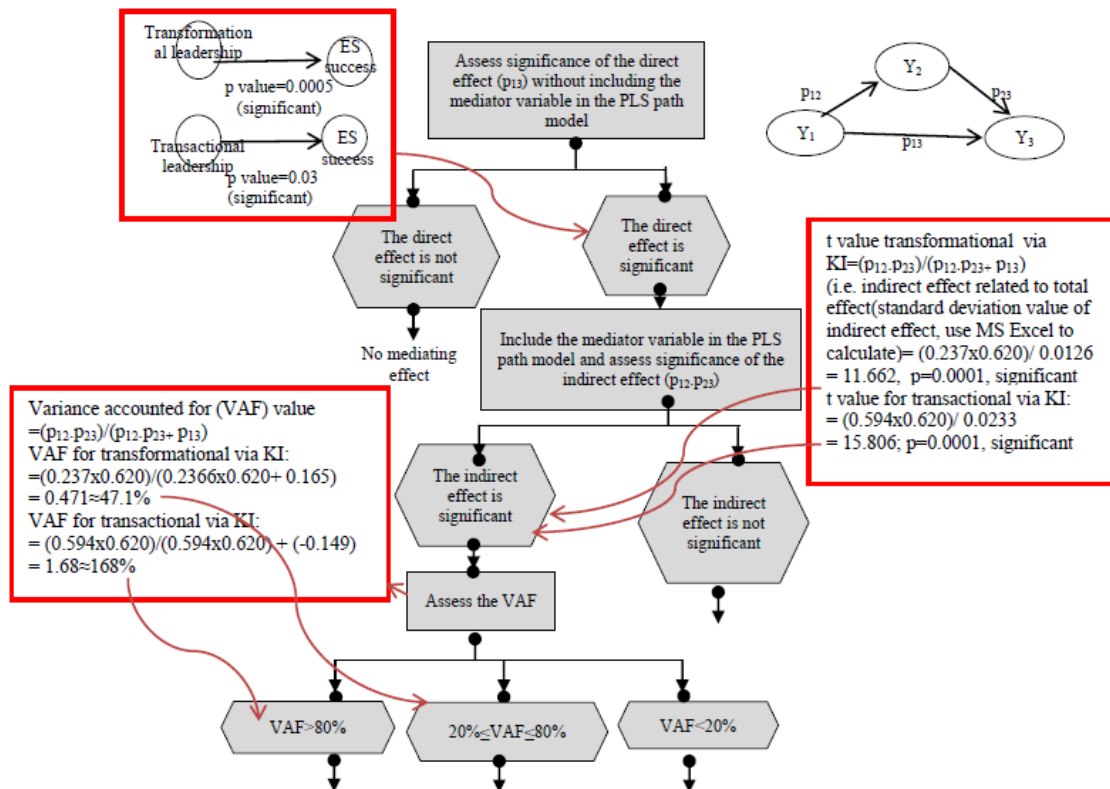


Figure 3. Mediator analysis procedure in PLS-SEM [17] (p. 224).

III. DISCUSSION

The importance of nurturing KI in organizations has been postulated by many researchers [5]-[7] and we have empirically substantiated the reputation of KI as a powerful tool for leaders when managing the ES post-implementation stage. Research by [7] and [13] demonstrated the importance of implementing KI while handling complex tasks, and we empirically proved that it is important to implement KI mechanisms such as rules, directives and organization routines in the ES post-

implementation stage through mediation analysis. Organizations should focus on conducting routine discussions or meetings to address any ES problems and determine the future directions in the ES with the key ES personnel. In addition, leaders should monitor the rules for job rotations and information audits in order to make sure all subordinates are well equipped with sufficient knowledge to operate the ES and that the ES information is up-to-date. The mediator analysis also showed that both leadership styles were supported by KI mechanisms and the result backings the claims in past studies that

leaders need a powerful tool such as KI to manage the ES post-implementation stage [6] and [12]. Furthermore, the results of the frequency analysis on the dominant leadership style in the organization indicate that mixed leadership styles are more successful in applying KI mechanisms for ES success. This evidence supports the argument by [17] that a mixed leadership is more practical in the ES post-implementation phase.

A. Theoretical Implications

The main theoretical implications of this study as follows:

First, this study is the first study to empirically examine the effect of KI mechanisms on transformational and transactional leadership styles towards ES success. Past studies have highlighted the crucial significance of leadership styles while managing the ES post-implementation stage. However, the ways in which managers with different leadership styles manage the ES post-implementation stage efficiently and how the leadership styles directly impact on ES success were still unknown. Therefore, we proposed the model to investigate the contribution and impact of KI mechanisms as a mediator between the two leadership styles and ES success.

Second, this study fills the gap in knowledge on KI mechanisms and ES success. Some studies have explored the importance of KM in mediating and facilitating leadership and ES success. However, the role of KI mechanisms in mediating two popular leadership styles was still unexplored. ES implementation requires contributions from many parties, and this requires active leadership. Subordinates need to adapt to the new environment and become familiar with the newly installed system. Leaders have to wisely manage the subordinates in using the ES in order to achieve the organizational goals.

Third, the study contributes to the research on KI in the ES domain by considering ES characteristics to implement KI mechanisms in the organization by managers. Past studies have explored the significant relationship between KI and ES success, but none have investigated the role of KI mechanisms from the perspective of KI as a mediator for ES success.

Fourth, this study enriches the theory of KI mechanisms proposed by [12] by adapting the KI mechanisms for the ES perspective. The KI mechanisms introduced by [12] are more relevant to the organizational production line which involves a focus on routine and sequencing tasks with minimum communication. However, an ES has different needs as the processes are complex and require active communication among the stakeholders who possess diverse knowledge.

Fifth, we empirically tested the argument by [8] that an ES needs active communication and special attention from stakeholders with vast knowledge. We tested the organizational routine which consists of brainstorming sessions, joint problem-solving, annual ES expertise convention, routine discussions about ES problems with ES experts, special ES communication forums, and monthly or annual ES training for new employees. All the

indicator loadings were higher than the threshold value (0.708), thus indicating the reliability of the indicators. We also empirically tested the KI mechanisms introduced by [12] (i.e. rules and directives), and all the indicators of the rules and directives construct were above the threshold value (i.e. 0.708). This indicated the reliability of the indicators as well as the constructs.

B. Practical Implications

The main practical implications of this study as follows:

From a practical perspective, this study provides insights for the managerial team regarding the need to focus seriously on implementing and practising KI in the organization, especially when the organization is adopting an ES. Both transformational and transactional leadership styles are important when managing an ES. This study empirically proved the effect of practising KI in the ES post-implementation stage with both leadership styles. Both leadership styles have their own strengths, and leaders should wisely “put on the right hat” when dealing with their subordinates.

Secondly, our study presents evidence on the importance of leaders’ adoption of KI practices when managing the ES post-implementation stage. Thus, in order to cultivate KI in the organization, leaders have to implement an appropriate reward and recognition scheme for their subordinates. Leaders also have to be more supportive, encouraging and sensitive to their subordinates in order to promote KI practices.

Third, the study revealed that the transactional leadership style makes the greatest contribution to ES success when KI mechanisms are used as a tool to manage the ES post-implementation stage. Therefore, leaders should practise more aspects of this leadership style and use KI mechanisms when handling ES post-implementation challenges.

Lastly, this study offers evidence that the adoption of KI mechanisms is important in order to enhance the leadership styles that guide an organization towards ES success.

There were some limitations in this study. This study used the average of all the sub-items of two leadership style constructs to form a synthesized score. In addition, the survey was conducted in Malaysia, and the results are not necessarily generalizable to other countries or cultural settings. Moreover, we investigated only two popular leadership styles. However, the strength of this study is that it provides evidence that leaders need to adopt KI mechanisms when handling the ES post-implementation stage so that their organization will attain the best outcomes from the ES.

IV. CONCLUSIONS

Building on leadership theory, the knowledge-based theory of the firm and ES success dimension theory, this study offers a useful theoretical model for examining the impact of KI mechanisms as a mediator between two leadership styles and ES success in the post-implementation stage. The findings contribute to theory

and practice. This study can serve as a foundation for future examinations which could gainfully investigate each of the sub-items of the formative leadership styles separately as reflective constructs. This approach can be used to investigate which sub-items of the leadership styles are more likely to promote KI mechanisms. Future research can also investigate the role of KI mechanisms as moderators between both leadership styles. The study can also be expanded by looking in-depth at other leadership styles.

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