Project Monitoring and Evaluation Practices and Project Performance: The Mediating Role of Management Support

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Abstract

This study examines the relationship among project monitoring and evaluation practice, management support, and project performance using survey data from 296 project leaders. To test the direct and indirect effects of project monitoring and evaluation practice on project performance, LISREL analysis was employed. The association between project monitoring and evaluation practices and project performance is explained using management support as a mediating variable. As a result, project monitoring and evaluation practice are positively related to project performance, with management support serving as a mediating variable.

Keywords: *Monitoring and Evaluation, Performance, Management*

1. Introduction

Project Monitoring and Evaluation (PM&E) is a project management tool, which acquires specific project aspects of resource utilization to inform management for course correction and planning (Ika, & Hodgson, 2014). Scholars have explained the relationship between PM&E and project performance in construction, environmental change, land management, and mariculture (Kissi, Agyekum, Baiden, Tannor, Asamoah, & Andam, 2019; Emmett & GMEP Team, 2013; Odhiambo, Wakibia, & Sakwa, 2020; Hauge, 2001). Leach,1999) found that PM&E activities enabled better performance of the project by informing management for course correction and planning. However, the empirical research results might contradict each other. This raises whether PM&E is always an appropriate tool or whether its relationship with project performance is more complex. There could be different PM&E tools and different perspectives may view differently the appropriateness of PM&E as a project management tool.

The Utilization-Focused Evaluation (UFE) views PM&E as a project management tool that should be judged on its usefulness to its intended users (Franke, Christie & Parra, 2002; Patton, 2003). The PM&E

practices require managerial support such as communication, managerial commitment, leadership role, and motivation (Lämsä & Savolainen, 2000; Belout & Gauvreau, 2004; Kumar, 2009; Kamau & Mohamed,2015). From the UFE perspective, management support is an essential factor. However, resource constraints make it challenging. According to Ika Diallo and Thuillier (2010), management support becomes a strength of the PM&E team.

Using UFE theory, I develop and test hypotheses on such mediating effects using a sample of 296 entrepreneurship development project implementing organizations associated with the NGO Federation of Nepal. The primary objective of this study is to examine how PM&E practices affect project performance through management support. I focus on the importance of management support in the relationship between PM&E practices and project performance by examining the direct and indirect effects of monitoring and evaluating project performance through management support. The rest of the paper sets out the hypothesis of this study, followed by the methodology. Then, the study presents the results. Discussion and conclusions are presented in the last section.

2. Hypotheses Setting

2.1 PM&E and Project Performance

The importance of M&E to project performance has been acknowledged in the project management literature (Kimweli, 2013; Kithangacha, 2018; Dobi, 2012). I distinguished five dimensions of PM&E, including M&E Planning (MEP), Baseline Study (BS), M&E Budget (MEB), M&E Scheduling (MES), and Midterm and End term Evaluation (MEE) as suggested by Kissi, Agyekum, Baiden, Tannor, Asamoah and Andam (2019), and Crawford and Bryce (2003). All these dimensions lead to project performance. Thus, PM&E practices may be a good predictor of project performance. These arguments lead to the following hypothesis given in the next section.

Hypothesis 1: PM&E practice will be positively related to Project performance.

2.2 PM&E Practice and Management Support

PM&E practices are critical for the project team to achieve the project's desired goals (Millstone, Van Zwanenberg & Marshall, 2010). Likewise, management support such as communication, managerial commitment, leadership role, and motivation plays a significant role in project success (Lämsä & Savolainen, 2000; Belout & Gauvreau, 2004; Kumar, 2009; Kamau & Mohamed,2015). The management support allows the project team to deliver planned project outputs (Dvir, Raz & Shenhar, 2003). With PM&E, the project team can avoid failures and fulfill project promises. Management support is a mediating factor between the PM&E and project performance in this study. The mediating variable is an intervening variable that helps to see changes in the dependent variable (MacKinnon, Lockwood, Hoffman, West & Sheets, 2002). The mediating variable usually changes. I can reasonably expect a positive relationship between PM&E and management support. Hence, I hypothesize:

Hypothesis 2: PM&E practice will be positively related to management support.

2.3 Management Support and Project Performance

It is important to note that management support is a critical factor in achieving project success. The UFE theory recognizes management support as a strategic resource of project management (Patton, 2003). Previous studies have uncovered the critical role of management support in PM&E practice (Kamau & Mohamed, 2015). Furthermore, a project team that receives

management support can deliver project promises in new and distinctive ways. From the UFE perspective, management support is essential for cost control methodologies (Patton, 2003). Therefore, when PM&E practice receives management support, the project team is more inclined to achieve cost, schedule, and quality performances. It is believed that management support is critical because of its positive relationship with project performance. Thus, I propose the following hypothesis.

Hypothesis 3: Management support will be positively related to project performance.

2.4 The Mediating Effect of Management Support

Micah & Luketero (2017) have suggested that the relationship between project PM&E practices and project performance may be more complex than a simple main effect. As noted previously, hypothesis 2 states that PM&E practices will be positively related to the project performance and hypothesis 3 states that management support will be positively related to project performance. These two-hypothesis link PM&E with project performance and management support with project performance. This means that the relationship between PM&E practice and project performance is hypothesized to be indirect. Therefore, management support plays an intermediate role between project performance and independent variables of PM&E practice. Hence, the following hypothesis is developed.

Hypothesis 4: Management support will mediate the relationship between PM&E and project performance.

3. Research Methods

I employed a questionnaire survey approach to collect data, and all items required seven-point Likert-scale responses ranging from 1= "strongly disagree" through 4= "neither Agree nor disagree," to 7= "strongly agree." The population in the study was the Kathmandu-based Non-Governmental Organizations (NGOs) listed in the NGO Federation of Nepal. Of 330 questionnaires emailed, 301 responses were received, and five of them were incomplete. The remaining 296 valid and complete questionnaires were used for the quantitative analysis. The four dimensions of management support were Communication I, Managerial Commitment (MC), Leadership Role (LR), and Motivation (M) (Lämsä & Savolainen, 2000; Kumar, 2009; Kamau & Mohamed,2015; Belout & Gauvreau, 2004). Project performance dimension was measured with three dimensions: Cost Performance (CP), Project Schedule Performance (PSP), and Project Quality Performance (QPP) (Kissi, Agyekum, Baiden, Tannor, Asamoah, & Andam,2019). The study employed Cronbach alphas and composite reliabilities to measure the reliability of the multi-item scale for each dimension, and reliability measures were above the recommended minimum standard of 0.60 as advised by Bagozzi and Yi (1988). In this study, both measures of reliability are above 0.70.

This study used LISEREL analysis to test the direct and indirect effect of project PM&E practices on project performance. This analysis provides a chi-square value and five indices to confirm the path models. The indices are the goodness-of-fit index (GFI), the Adjusted Goodness-of-fit Index (AGFI), the Normed Fit Index (NFI), the Comparative Fit Index (CFI), and the Root Mean Square Residual (RMSR). The result of this analysis satisfied the fit indexes of confirmatory factor analysis ranged from adequate to excellent for project PM&E practices, GFI=0.98,AGFI=0.95,NFI=0.94, CFI=0.98, RMSR=0.02, management sup port=0.97,AGFI=0.94,NFI=0.95,CFI=0.97, RMSR=0.01, and project performance: GF I=0.94,AGFI=0.89,NFI=0.92,CFI=0.98,RM SR=0.03.Additionally, the three models of project PM&E practices, management support, and project performance had

chi-squares less than three times their degrees of freedom, 137.52/59=2.34, 212.58/98=2.16, and 65.29/25=2.61, respectively. The confirmatory factor analysis results suggested that the models of project PM&E, management support, and project performance provided a good fit for the data (Anderson & Gerbing,1988).

Furthermore, convergent validity was measured using the t- statistics for analyzing path coefficients from the latent variables to the related items. This study found statistically significant with the highest t-value for the items measuring project PM&E practices 9.41 and the lowest t-value for the items measuring project performance 2.05. These values exceed the standard requirement of t-value 2 (Anderson & Gerbing,1988). It confirms the satisfactory convergent validity for all dimensions. This study employed the confidence interval for each pairwise correlation estimate (i.e., ± two standard errors) should not include 1, the percentage of variance extracted, and measure the correlation between each pair of constructs, one at a time equal to 1 to satisfy the discriminant validity requirements (Anderson & Gerbing, 1988; Hoyle, 2000). All these conditions satisfied all pairwise correlations in three measurement models, the percentage of variance extracted exceeded the construct's shared variance with every other construct, and the correlation between each pair of constructs, one at a time, is equal to 1. The chi-square difference in all cases was significant at p≤0.001 level of significance. So, each measurement model satisfies discriminant validity between all pairs of constructs. This study has some limitations. Because of the cross-sectional nature of the survey, I am unable to investigate causal associations between my variables.

4. Analysis and Results

LISREL 8.52 was used to analyze the hypothesized relationship. Each path between constructs was evaluated for statistical significance of the path coefficient. The hypothesized relationship was tasted with a complete model, and the result of LISERL analysis suggested that the model is a perfect fit with GFI=0.943, AGFI=0.878, NFI0.986, CFI=0.99, RMSR=0.0135, the chi-square 73.06 (df=40). The results were presented in the table 1 below, and the figure 1 showed the path coefficients, t-value, and constructed relationship.

Table 1

Standardized path estimates				
Hypothesized relationship				
Hypothesis	Variables	Path Coef-ficient	t-value	Result
H1	Project PM&E will be positively related to Project performance.	0.48	7.42	Supported
H2	Project PM&E will be positively related to Management Support.	1.2	11.9	Supported
H3	Management support will be positively related to project performance.	0.52	8.37	Supported

p<0.05, p<0.01. n=296 (two-tailed test).

As hypothesized, all three hypotheses of H1, H2, and H3 are supported. It means, there is a positive relationship between project PM&E and project performance (11 = 0.48, t= 7.43), a positive relationship between project PM&E practices and management support (21 = 1.20., t= 11.81), and a positive relationship between management support and project performance (12 =0.55, t= 8.37).

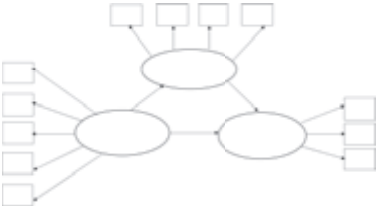

Figure 1. The results of this study

The three conditions must propose in an empirical study with the mediator (Bagozzi & Yi,1988).

1. the independent variable has a significant impact on the mediating variable,
2. the independent variable has a significant impact on the dependent variable without a mediating variable, and
3. the use of a mediator decreases the relationship between the independent and dependent variables while presenting a significant relationship between the mediating and dependent variables.

In this study, the independent variable was the project PM&E practices, the mediating variable was management support, and the dependent variable was project performance. I tested three conditions by employing LISREL analysis. Results show that the project PM&E practices significantly positively affect management support ($\gamma 21$ = 1.09, t= 13.14). The first condition is met. The result also shows that the project PM&E practices significantly positively affect project performance ($\gamma 11$ = 1.33., t= 11.20). It satisfies the second condition. In the third condition, the PM&E practice significantly positively affects firm performance ($\gamma 11$ = 0.68., t= 9.24), and management support has a significantly positive relationship with project performance ($\beta 12$ =0.65, t= 9.78).

For the test of the third condition, I examined the change in chi-square value for the PM&E practices variables between before and after entering the management support variable. Results show that chi-square value had substantial change after entering management support variable ((Δ 2 = 44.66, Δdf= 1, pb0.001). The significance of the direct effect of project PM&E practices is reduced when the indirect effect of project PM&E through management support is included in a total effect model. These results show the mediating effect of management support. Therefore, H4 is supported. Based on H4, this model demonstrates that management support mediates the relationship between project PM&E practices and project performance (total effect =1.09, indirect effect = 0.62, $p<0.001$, direct effect = 0.48, $p<0.05$). Here, the indirect effect is significant, and the direct path remains significant (although reduced) in the presence of management support. The direct effect also remains significant. However, it contains only 43.17% of the total effect of the independent variable on the dependent variable, with the remaining 56.83 % following through the mediating variable of management support. All these support hypotheses 4.

5. Discussion and Conclusion

This study provides a conceptual model to examine the mediating role of management support in the relationship between PM&E and project performance. The result shows that PM&E practices can positively contribute to project performance. However,

if management support is added as a mediator, the direct positive relationship between PM&E and project performance will reduce. It is proved that PM&E practices influence project performance indirectly by influencing management support. Therefore, management support plays a mediating role.

A longitudinal investigation will shed more light on the management support. Further researchers may use a longitudinal design to investigate my model's causal inference. This study needs to go further in examining a potential medication in the relationship between PM&E and project performance. However, I do not consider the other factors such as culture. In addition, it is likely that if leadership changed or changes, the PM&E practices and project performance might be influenced. Since the analysis is focused on self-report results, there is a risk of common method bias. However, in this analysis, the test of common method biased reveals that it is not a significant issue. Multiple measures, such as Cronbach alphas, composite reliability, and convergent and discriminant validity were used to support the consistency of the data and the outcome.

In conclusion, PM&E practices are crucial to project success. When exploring the relationship between PM&E activities and project performance, my research emphasizes the critical importance of the mediating role of management support. In today's complex climate, the perspectives proposed in this study have significant implications for project implementation organizations.

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(Late Prabin Raj Gautam, was a Ph.D. Scholar at University of the Cumberlands, Williamsburg, KY 40769, USA. He died in an automobile accident in the first week of June a few days after submitting this article for review. The comments made by reviewers could not be reflected, so the article might raise technical questions and comments. NEPAN published this article as a tribute to late Prabin Raj Gautam. May the departed soul rest on peace!)