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Abstract

The success of a project can only be determined if project management are capable to reflect the contribution of significant and if the project is able to attain these standards linked to competencies. Project managers are very lucky if they have the option to choose their project team. Always, their team is inherited to the project from different sections of the company. It is crucial to have a good project team to work with, with the key skills that can be evolved to core competences and abilities for the whole company. The research establishes the effect of project management competence on project performance of dam projects in China. The study adopted descriptive survey design. Project management competence has a useful impact performance of dam projects. The study also concluded that project management competence affects performance of construction projects. Project management competence in terms of project initiation, project planning, monitoring and evaluation are required in the successful completion of project. The study recommends the adherence to proper project management competence to the performance and sustainability of the construction sector. Proper design and planning for projects should be done as accurately as possible and involving.

Key words: *Project management competency, a, project performance, Dam projects, China*

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1.1 Introduction

Many projects around the world keep failing, leading to the loss of millions of dollars for companies. This persisting constraint has caused many project management professionals to try to establish the important variables that need to addressed head-on to make a productive project management outcome (Sang, et al., 2018). A few dam projects in China faced the problems, particularly for quality management, time management and time management etc. Usually, those projects were not appropriately set up according to the phases of the project and the managers of the project and stakeholders of those projects have inadequate knowledge for the regulation of knowledge areas.

In China, project management of dams is highly emphasized for the success of the project. Dam project management consist the use of skills, tools, knowledge and techniques to forecast practices to meet achieve project requirements (Nair, 2016). The Three Gorges Dam Project viewed each project as being unique and so was set to address its inherent challenges to ensure its successful completion. Stakeholders buy in is an important aspect to be managed in a project (Kirchherr, 2018). Stakeholders of the Three Gorges dam project are the China government and its departments, environmentalist/archaeologists, project team, people of the region, contractors, financiers and project team (local and international), (Nair, 2016). With respect to the Three Gorges dam project, quality of equipment, workmanship and finished product are critical to the completion of the dam. The Three Gorges dam project established a quality system to enable the project deliverables to be met saving on schedule and costs

Competency in project management (PM) has been tackled by a number of explored researches that are basically based on the opinions of project management practitioners. Some researchers have noted the importance of PM skills and features in success of the project (Starkweather, & Stevenson, 2011), while others have assessed PM competencies across cultures and industries (Stevenson, & Starkweather, 2010). Some studies done on project managers' competencies concentrated more particularly on the significance of human skills. Larson and Gray (2013) showed that productive project managers should acknowledge the significance of handling people in projects by applying good interpersonal skills.

One of the early trials to relate project managers' skills and features to success of the project was done by (Walker, 2015). The research indicated that a well-trained project manager can produce a productive team a core factor in the success of a project. Hwang and Ng (2013) established the general knowledge and skill elements perceived as essential for developing project management competency through a survey of project managers in the construction industry. The findings stressed the significance function of experience for achieving, maintaining and renewing skills and competencies in construction project management.

Brière et al. (2014) established competencies of international development project managers and how these competencies are applied in projects (Brière, Proulx, Flores & Laporte, 2015). Brière, Proulx, Flores & Laporte identified the significance given by handlers to the competencies they must develop based on the environment where the projects are carried out. Crawford and Nahmias, (2010) identified the personal competencies needed to handle changes of the organization. They summarized core management competencies as problem solving, decision making, leadership, stakeholder management, planning, team development, cultural awareness and communication Hwang and Ng Hwang (2013) came up with the constraints faced by project managers who perform green construction projects and established the important knowledge areas and skills needed to be a competent project manager. The findings showed that the most significant knowledge areas needed to curb the

constraints were resource management, cost management, human resources management, schedule, communication management, and stakeholder management. Also, the most important skills shown by this research included problem-solving skills, delegation, analytical, team working, and decision-making.

Usually, cost overruns are most commonly applied as indicators of project performance. Completed projects within minimum time and costs overruns are believed to be well handed projects. Nevertheless, whereas this may be partly true, it doesn't enhance the comparison with other projects. This is largely because it doesn't tell us whether time and cost estimates were unrealistic. Project targets are set for purposes, coordination, control and direction (Larson & Gray, 2013). Due to this, their estimation may not be realistic. Overrun if any could as much be because of bad estimation as it could be due to mismanagement. The project performance signal will be time, scope, cost and quality. Brière, *et al.* (2015) established project performance categories such as client satisfaction, environment, safety time, quality, health, cost, people and communication. This paper determines the impact of project management competency on project performance of dam projects in China.

2.0 Theoretical Literature

Project Management Competency Theory guided this paper. The work of McClelland & McBer in the 1980s established the competence theory. The writers stated competency as the basic feature of a person that is causally linked to criterion-referenced productive and high performance in a situation or job. Since then a number of competency supports have been progressed by several project management institutes. Crawford (as cited in Boyatzis, 1982 & Spencer, 1993), places a model of competence that merges demonstrable performance, knowledge, key personality features and skills, noting the last, personality features, as challenging to develop and assess by training. She implies that two of the most swayful project management standards, the PMBOK, address only the knowledge aspect of competence while a third, Australia's National Competency Standards, draws from knowledge but concentrates only on demonstrable performance. Crawford, (2010) research discovered out that project managers "do not inevitably have the needed competence or execute the full practices needed to enable and put into practice the changes that they are guiding as part of their projects.

Interest in project management competence derive from the very agreeable and intensively held claim that if persons that run and work on projects are qualified, they will work successfully and that this will cause significant work and productive companies (Beer, 1990; Smith, 1976). Competence is generally admitted, nevertheless, as encompassing behaviors, attitude, knowledge, and skills that are causally linked to higher performance at job. Crawford (as cited in Boyatzis, 1982 & Spencer, 1993), indicated that professional competence in management of the project is achieved by integration of knowledge obtained from training and its succeeding use and other skills made in the course of task.

Older management researches have established the effect of competency on performance. Dainty (2004) implied that a competency based performance model for building project managers where managerial behavior input is appreciated and nine performance signal for PM competency are developed to comprise leadership, maintenance of external relations, integrity, mutuality, understanding, team building, honesty, decision-making understanding and approachability, communication, understanding and application, learning, and self-efficacy. In the circumstance of building management of project; it is believed that if the manager of the project and the team of the project have all the needed competence for the work then the project implementation will be productive.

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3.0 Methodology

The research used descriptive survey design. The study population was341 dam projects in China where a census of all the dam projects was conducted. The units of observation were the dam project managers. Structured questionnaire were distributed to project managers. Data analysis was conducted by use of SPSS version 25.0. Simple OLS was used to determine the impact of project management competency on project performance of dam projects in China.

4.0 Results

4.1 Descriptive Analysis

4.1.1 Project management competence

The research tried to determine the effect of management of the project competency on project performance of dam projects. For the purposes of interpretation strongly disagree and disagree were interpreted together as disagreeing, agree and disagree were grouped and interpreted as agreeing while unsure was interpreted alone. The results obtained are presented in Table 1.

Table 4.4 Project management competence

Project management competence	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree	Mean	SD
Periodic monitoring of housing projects is conducted by construction experts	30.0%	43.6%	7.4%	8.2%	10.9%	2.3	1.3
Timely evaluation of ongoing housing projects is conducted by the contractor	30.7%	40.5%	5.8%	10.9%	12.1%	2.4	1.3
There is effective risk management of ongoing projects to mitigate building collapse	35.4%	38.5%	6.6%	7.0%	12.5%	2.1	1.2
Quality approvals are periodically undertaken on housing projects in order to maintain quality of housing projects	32.7%	40.9%	5.8%	9.3%	11.3%	2.2	1.3
Scope and project deliverables are observed to enhance success of the project	32.3%	40.1%	3.5%	6.2%	17.9%	2.4	1.4

Table 1 shows that majority of project managers disagreed that periodic monitoring of housing projects is conducted by construction experts, with mean score of 2.3 and standard deviation of 1.3 implying that periodic monitoring of housing projects is poorly done. The results also showed that majority of the project managers disagreed that timely evaluation of ongoing housing projects is conducted by the contractor, with mean score of 2.4 and standard deviation of 1.3 implying that project evaluation is inadequately done. The results also showed that majority of the project managers disagreed that there is effective risk management of ongoing projects to mitigate building collapse with mean score of 2.1 and standard deviation of 1.2 implying that effective risk management of ongoing projects is inadequately. It was also revealed that majority of project managers agreed that quality approvals are periodically undertaken on housing projects

in order to maintain quality of housing projects, with mean score of 2.2 and standard deviation of 1.3 implying that quality approvals of construction projects are not periodically done. Further, also revealed that majority of project managers disagreed that, scope and project deliverables are observed to enhance success of the project, with mean score of 2.4 and standard deviation of 1.4 implying that scope and project deliverables is conducted inadequately.

4.1.2 Performance of construction projects

The study sought to evaluate **performance of dam projects**. For the purposes of interpretation strongly disagree and disagree were interpreted together as disagreeing, agree and disagree were grouped and interpreted as agreeing while unsure was interpreted alone. The results obtained are presented in Table 2.

Table 4.5 Performance of dam projects

Performance of construction projects	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree	Mean	SD
Construction housing projects are implemented according to the set timelines	34.2%	36.2%	6.2%	4.3%	19.1%	2.4	1.3
Construction housing projects are constructed as per the cost/budget provisions	32.7%	43.6%	3.5%	4.3%	16.0%	2.1	1.1
Construction housing projects meet quality standards stipulated by construction authority of China	37.7%	36.2%	4.7%	4.3%	17.1%	2.2	1.2
Construction housing projects meet user satisfaction	21.4%	41.2%	16.0%	3.5%	17.9%	2.3	1.3
Construction housing projects attract sufficient return on investment for the owners	19.8%	34.6%	18.3%	5.4%	21.8%	2.4	1.4

Table 2 shows that majority of project managers disagreed that construction housing projects are implemented according to the set timelines, with mean score of 2.4 and standard deviation of 1.3 implying that implementation of construction projects fail to meet deadlines. The results also showed that majority of the project managers disagreed that construction housing projects are constructed as per the cost/budget provisions, with mean score of 2.1 and standard deviation of 1.1 implying that construction projects are not undertaken as per budget constraint. The results also showed that majority of the project managers disagreed that construction housing projects meet quality standards stipulated by construction authority of China with mean score of 2.2 and standard deviation of 1.2 implying quality of construction projects is in question. It was also revealed that majority of project managers agreed that construction housing projects meet user satisfaction, with mean score of 2.3 and standard deviation of 1.3 implying that some construction projects fail to meet customer satisfaction. Further, also revealed that majority of project managers disagreed that, construction housing projects attract sufficient return on investment for the owners, with mean score of 2.4 and standard deviation of 1.4 implying that returns from construction projects may be limited if internal competence is not adequately deployed.

4.2 Regression

The results presented in Table 3 present model summary and coefficient regression model.

Table 3 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.716[a]	.512	.506	.48540

a. Predictors: (Constant), project management competence

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	62.542	3	20.847	88.481	.000
	Residual	59.610	253	.236		
	Total	122.152	256			

a. Dependent Variable: Performance of construction projects

b. Predictors: (Constant), Project management competence,

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.373	.133		2.805	.005
Project management competence	.288	.047	.311	6.090	.000

a. Dependent Variable: Performance of dam projects

Project management competence explains 51.2% of the performance of dam projects. Project management competence are good predictors in predicting performance of construction projects a supported indicated by F statistic of 88.481> 2.53.The results also revealed that project management competence and performance of dam projects have a positive and significant relationship (β=.288, p=0.000<0.05). The regression of coefficient implies that if project management competence increase by one unit, the increases by .288 units. Management of project is the overall planning, coordination, and control of a project from the start to the end targeted at achieving requirements for a client for the purpose of making financially ad functionally viable projects. Project management skills are important in the initiation of a construction projects, monitoring and evaluation.

Project manager competency is a core feature determining the success of a project. A skilled project management is a factor that influences project achievement. Skilled project managements reliably use their project management learning and team activities to enlarge the shots of conveying projects that meet organizations goals. The results agree with Sang, Liu, Zhang, Zheng, Yao and Wang (2018) who conducted a study on the effects of project manager competency on green construction performance and demonstrated that project management competence promotes performance of construction projects.

5.0 Conclusion

The study also concluded that project management competence affects performance of construction projects. Management of the project competence in terms of project initiation, project planning, monitoring and evaluation are required in the successful completion of project.

6.0 Recommendations

The study recommends the adherence to proper project management competence to the performance and sustainability of the construction sector. Proper design and planning for projects should be done as accurately as possible and involving.

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