

AN EMPIRICAL STUDY ON FACTORS AFFECTING THE QUALITY IN CONSTRUCTION PROJECT

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ABSTRACT

Purpose: *The aim of the study is to identify the factors that affect the quality in the construction of a building project.*

Design methodology/Approach: *The study is done only inside the Tamilnadu construction industry and hence given are applicable only for the projects inside Tamilnadu district. We have used questionnaire method for collecting the factors from the construction industry.*

Findings: *The study had made the factors that affect the quality in the building construction projects visible to the construction industry and also helps in finding solution for the factors to improve the quality of the construction projects.*

Research implication: *The identified factors and their solutions will help the construction industry of Tamilnadu to build a good quality buildings in the future and their by helps the economic growth.*

Key Words: *Quality Factors, Solution, Construction Industry, Economic Growth.*

I INTRODUCTION

The construction industry is complex in its nature because it comprises large numbers of parties as owners (clients), contractors, consultants, stakeholders, and regulators. Despite this complexity, the industry plays a major role in the development and achievement of society's goals. It is one of the largest industries and contributes to about 10% of the gross national product (GNP) in industrialized countries (Navon 2005). In the context of construction industry, it is the likelihood of the occurrence of a definite event or combination of events which occur during the whole process of construction. Construction involves many variables, and it is often difficult to determine cause and effect, dependence and correlations. Hence, those risks play a significant role in decision making and may affect the performance of a project (Wiguna and Scott, 2005). Time, cost and quality are, however, the 3 predominant performance evaluation dimensions. Another interesting way of evaluating project performance is through 2 common sets of indicators (Pheng and Chuan 2006). With increasing higher users' requirements, environmental awareness and limited resources on one side, and high competition for construction business marketplace on the other side, contractors have to be capable of continuously improving their performance (Samson and Lema 2005). Palestine is no exception; the local construction industry is one of the main economic engine sectors, supporting the Palestinian national economy.

However, many local construction projects report poor performance due to many evidential project-specific causes such as: unavailability of materials; excessive amendments of design and drawings; poor coordination among participants, ineffective monitoring and feedback, and lack of project leadership skills (UNRWA 2006). Project performance can be measured and evaluated using a large number of performance indicators that could be related to various dimensions (groups) such as time, cost, quality, client satisfaction, client changes, business performance, health and safety (Cheung et al. 2004; DETR 2000). Organizations failing to adapt and respond to the complexity of the new environment tend to experience survival problems (Lee et al. 2001).

II LITERATURE REVIEW

Mbachu and Nkando (2007) established that quality and attitude to service is one of the key factors constraining successful project delivery in South Africa. Hanson et al. (2003) examined causes of client dissatisfaction in the South African building industry and found that conflict, poor workmanship and incompetence of contractors to be among the factors which would negatively impact on project performance. Iyer and Jha (2005) identified many factors as having influence on project cost performance, these include: project manager's competence, top management support, project manager's coordinating and leadership skills, monitoring and feedback by the participants, decision-making, coordination among project participants, owners' competence, social condition, economic condition, and climatic condition. Coordination among project participants, however, was identified as the most significant of all the factors, having maximum influence on cost performance. Faridi and El-Sayegh (2006) reported that shortage of skills of manpower, poor supervision and poor site management, unsuitable leadership, shortage and breakdown of equipment among others contribute to construction delays in the United Arab Emirates. Elyamany et al. (2007) introduced a performance evaluation model for construction companies in order to provide a proper tool for the company's owners, shareholders and funding agencies to evaluate the performance of construction companies in Egypt.

III OBJECTIVES OF STUDY

The given below is the objective of the study. They are,

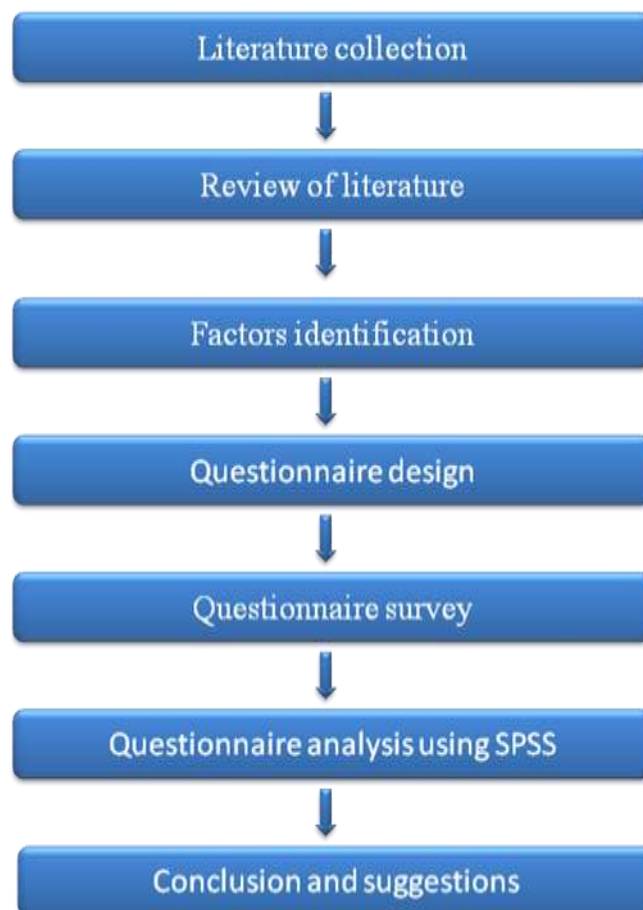
1. To identify the factors that affects the quality in a construction project.
2. To classify them based on their intensity or participation in affecting the quality of construction project.
3. To provide solution for the factors in a most economical way.

IV RESEARCH METHODOLOGY

The study is made with in a limit of till the borders of Tamilnadu, so the factors are applicable only to the Tamilnadu construction industry in Tamilnadu there were 32 districts they are Ariyalur, Chennai, Coimbatore, Cuddalore, Dharmaburi, Dhindigul, Erode, Kanchipuram, Kanyakumari, Karur, Krishnagiri, Madurai, Nagapattinam, Namakkal, TheNilgiris, Perambalur, Pudukottai, Ramanathpuram, Salem, Sivagangai, Thanjavur, Theni, Thoothukudi, Thirucharapalli, Tirunalveli, Tiruppur, Tiruvallur, Tiruvannamalai, Tiruvarur,

Vellore, Viluppuram, Virudhunagar. Among all these districts the total construction company's count is 2304. Chennai(1601) and Coimbatore(299) has the maximum number of companies. There were so many projects they were going on all over on all around Tamilnadu. The roadways department working on four projects namely ECR, IT CORRIDER, EMRIP, and CORR. The PWD works on the motto of urban development by building the structures. In these entire districts the construction plays a vital role and the reaches used the questionnaire method to collect the factors from the site (or) from the project managers. Then the obtained information is arranged in a five point scale based on the scores given by the construction companies in the Tamilnadu construction industry.

METHODOLOGY



III RESONDANCE RATE

No of questionnaires send	153
No of responses	62
Response percentage	40.52%

IV DEMOGRAPHIC PROFILE OF THE RESPONDENTS

Table No. 1. Demographic profile of the Respondents

S.No	Demographic profile variable	Category	No. of Respondents	Percentage
1	Gender	Male	47	75.80%
		Female	15	24.19%
2	Age	21-30 years	8	12.90%
		31-40 years	27	43.55%
		40-50 years	23	37.09%
		Above 50 years	4	6.45%
3	Experience in construction field	Less than 2 years	5	8.06%
		2 years to 5 years	16	25.80%
		6 years to 10 years	26	41.94%
		11 years to 15 years	12	19.35%
		Above 15 years	3	4.84%
4	Work type	Quality engineer	17	27.42%
		Project engineer	13	20.97%
		Proclamation engineer	14	22.58%
		Site engineer	18	29.03%
5	Education qualification	Diploma	21	33.87%
		B.E	23	37.09%
		M.E	15	24.19%
		Duel degree	3	4.83%

4.1 Factors that Affect the Quality

1. Cost
2. Time
3. Innovation and learning
4. Client satisfaction
5. Environmental factors
6. Health issues
7. Size and value of the project

8. Improper records of the labours day work
9. Complexity of the project
10. Availability of labour near site
11. Availability of skilled labour
12. Poor cost control of equipment
13. Improper Equipment utilization in site
14. Decision at right time
15. Non-support by the management
16. Negative attitude of contractors, labours.
17. Payment to workers
18. Opposition of political environment
19. Amount of work stoppage
20. Expiry of Guarantee
21. Drawing with less details
22. Inexperienced staff supervision
23. No raw material access places
24. Insufficient cash flow by contactors
25. Low quality raw material
26. Scale ratio problem in design
27. Unclear site layout
28. Poor labour management
29. No safety programs to labours
30. Access to site is difficult

4.2 Top Factors and Their Solutions

RANK	MEAN VALUE	FACTORS	SOLUTIONS
1	4.96	Low quality raw material	Get fresh and high quality raw materials and use advanced materials for construction.
2	4.90	Inexperienced staff supervision	Training programs and selection criteria for staffs.
3	4.86	Non-support by the management	The management needs to support and use regular analysis system to support their employees to maintain quality.
4	4.85	Improper Equipment utilization in site	Regular services and durable equipment selection and demo classes.

5	4.79	Drawing with less details	The drawing need to be clear and need to be given to skilled professionals.
6	4.73	Negative attitude of contractors, labours	Providing communication programs to improve their attitude.
7	4.59	Improper records of the labors day work	Labors record need to be computerized and maintained with a good server
8	4.38	No raw material access places	Site need to be placed near the raw sources or else with good transport system
9	4.19	Time	Proper time maintenance with biometric fingerprint scanners.
10	3.95	Health issues	Proper health maintenance and awareness programs were conducted.

V CONCLUSIONS

The study has identified many factors that affect the quality of the construction projects. And the solutions that were provided for the factors will help the construction industry to develop a high quality economy.

VI LIMITATION AND SCOPE FOR FURTHER RESEARCH

Even though the study has achieved its aim in identifying the factors, it has its limits. The identified factors will be applicable only within the Tamilnadu construction industry. So these kinds of studies will be further implemented to other states of India. Hence it will helps in the quality development of the Indian construction industry.

VII MANAGERIAL IMPLICATIONS OF THE STUDY

This study may contribute many things to the existing literature. The identified factors and their solutions will help the Economy in general and construction industry in particular. Based on the findings of the study the construction industry manages their workers progress in a quality fulfilled manner and it helps their customer satisfaction without loss in their profit.

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