

Research Article

Organizational Culture in Telangana Construction Projects

A. M. Naveen, P. Vidhya Priya

Department of Management Studies,
Kongu Engineering College, Perundururai – 638060. India.

*Corresponding author's e-mail: vidyapriya@kongu.ac.in

Abstract

In Telangana, infrastructure development has increased the growth of the state economy and has generated large amount of job opportunities. Hence those projects involve a large amount of investment to carry out. In view of that, if any sort of impact of culture would lead to waste of resources and delay of construction. In this connection, this study mainly discusses the critical cultural factors and its assessment techniques through comparative study of construction projects across Telangana by using questionnaire survey which would reveal the strong correlation between the culture followed in project and the outcome of the project. About 60 relevant articles published over the last 20 years have been reviewed. The review resulted that a simple assessment technique will be developed for each project task to assess the impact of culture in construction project easily and quickly, which will encourage the practitioners to do the cultural analysis in their project. This study concluded that the earlier cultural identification in the project assessment of the construction will lead to the better estimation of the escalation on time overrun. Such cultural assessments help to successful completion of the project.

Keywords: Telangana; Construction Projects; Culture; Performance; Questionnaire survey; Practitioners.

Introduction

Culture in construction project

In undertaking any research, it is necessary to initially establish the need for such study. By doing so, a point of reference is provided against which the outcomes of the study can be assessed. This is the intention of this study in which the context is set, and the aim and objectives are defined.

The aim of the present work is to determine the extent to which the Telangana construction project performance influences organizational culture and to develop a model to assess construction project / organizations in terms of performance, and to their possible outcomes of cultural orientation.

To achieve the above, the study would seek to review the literature based on performance of understanding the factors influencing the role of culture in Telangana, trace the evolution of 'culture' based on project culture in Telangana, develop a relationship model between performance and organizational

culture, develop an instrument for diagnosing and measuring organizational cultures in Telangana and to assess the performance of organizational culture in Telangana.



Figure 1. Four Dimension of Culture [1]

Figure 1, depicts the four dimension of culture [1]. These are said to be of great importance when considering the effect of cultural differences on management and organizations [2]. This model is highly influential and has been widely used to predict how a group of people from a certain cultural background will react in a given scenario.

Hofstede's dimensions of culture are described as [1]:

Individualism vs Collective - the Individualism dimension is dealing more on the individual person and how self-centred and selfish they are, because they are not tied to anyone in society. The collectivism dimension is the opposite of individualism. In this society the individuals are strongly tied to people in their society. Nonetheless, "it appears that an individualistic country is wealthier than a collectivist country".

Power Distance - this dimension is more focused on the degree of inequality found in a country. In an organization context it refers to the degree of centralized authority.

Uncertainty Avoidance - in this dimension, as the name speaks for itself, the degree of uncertainty and anxiety about the future is measured in a society. The weaker this measure is it means the more secure the people of that society are and vice versa.

Masculinity Vs Femininity - this dimension deals more with the role that men and women play in society, the divisions caused by these sex roles and how important it is that these roles are clearly defined. The more defined these roles are in a society, the more "masculine" that society is, whereas the society with less defined roles is "feminine".

History of impact of culture in construction projects

During 1990s Culture in construction became a hot research topic. Many researchers developed a series of thumb rule to analyze and assess culture in construction [3]. The culture in construction project can be managed by a systematic approach during planning stage in order to minimize their effects. This approach involves identifying sources of culture and its impact on construction project and selecting ways to control them [4]. Accordingly, the impact of culture in construction were categorized based on controllable and uncontrollable factors which lead cost and time overrun in a project. Based on this result, different cultural assessment models have been formulated to analyze and assess impact of culture in project during construction [5].

Till 2000, only few attempts have made on the identification and assessment of impact of

culture in construction projects. As a result there was a lack of systematic approaches to identify and manage the culture in construction projects [6]. Culture is grouped into three subdivisions: industry, client and projects. 10 cultural factors affecting construction project and they were grouped under two factors such as, management factors and parent factors. In the post 2000's many researchers made an attempt to propose the impact of culture in construction project using assessment tools such as Analytical hierarchy process (AHP) [7].

There is a sharp increase in the number of cultural assessment papers published after 2011. By many researchers, various integrated approach is developed for analyzing the cultural assessment in comprehensive decision making frame work. Classification of cultural factors under three heads: External, Legal and internal. External cultural was sub divided into two subsets: unpredictable/ uncontrollable, predictable/ uncontrollable and Internal cultural factor was sub divided into two subsets: Non-technical / controllable and Technical / controllable [8]. Further he suggested a hierarchy based cultural analysis and identified the key cultural factors [9] identified various cultural factors in the life cycle of the project under five heads such as Planning, Design, Procurement, construction, and Handling. They discussed the cultural impact with an integrated approach which includes brain storming, checklist, probability impact matrices, and subjective judgment. Finally they suggested that the cultural assessment workshop will be useful for cultural identification and analysis, as a means of managing culture. Many researchers have tried various approaches for representing the interdependencies between project culture and its complexity of the surrounding environment [10]. The impact of culture in construction project is relatively high in large construction projects and this is due to time and budget and high profit margin. The results indicated a positive connection between cultural assessment/ analysis implementation and improvement in project quality, cost and schedule performance of large projects.

Analysis and discussion on identification and assessment of cultural factors

Different types of culture in construction projects

Culture in construction has been classified in different ways [11] categorized project culture into external and internal risks and developed a fuzzy model for analyzing cultural impact. External cultures are those that are prevalent in the external environment of projects. Internal culture covers labor and subcontractor. Consequently many researchers identified several cultural factors and they are classified into different types depends on nature of the project [4,5,11-16].

Methods for analyzing culture in Telangana

Principally two research methods are adopted across Telangana namely In-Depth interview method and Computation method. The In-Depth interview method has Limitation in its application. The Computation method is termed to be reliable and allows data collection to large spectrum of organization. In most instances Computation method is achieved by collecting data through the use of questionnaire.

The current study adopted the Computation method and hence questionnaire survey was used to collect data. The Computation Method is preferred than In-Depth interview method since it was important that respondent answered to the same questions that were prepared before. Firstly a Preliminary Survey was conducted across Telangana to assist with developing the main questionnaire survey. The concept was to ensure questionnaire questions were absolute to yield desired outcome.

Respondents to the preliminary study gave suggestions that to be included in the main survey and the analysis indicated certain changes to the questionnaire were necessary to be more reliable. The main questionnaire was conducted in the second stage of data collection. Respondents were requested to answer on a five-point Likert scale. Respondents were requested to rate to which they agree or disagree based on their project performance. Each of the scaling given a percentage to show the weightage of each answer.

Age, sex and professional distribution of the study participants

A total of 104 samples were collected from the nasal cavity of Allied health care students. About 20.19% were males and 79.81% were females, and they were aged between 17-21 with the mean and S.D. of 18.24 ± 0.62 . The

demographic profile of the respondents was shown in table 1.

Table 1. Likert Scale used for drafting the Questionnaire

Scale	Description	Percentage Allocation (%)
5	Strongly Agree	80-100
4	Agree	50-80
3	Neutral	50
2	Disagree	20-50
1	Strongly Disagree	0-20

Case Study: Telangana construction projects

Data Collection

The impact of cultural factors identified by many researches done in 4 different projects in Telangana (2 in Hyderabad, 1 in Karimnagar and 1 in Mahabubnagar) by drafting Questionnaire using the Appendix (Section A and Section B) as shown below. From the demographic information it is understood that, factors like Respondents age, Respondents gender, Respondents qualification, Respondent experience, Respondents organization category, Respondent role in the project (Foreman, Construction Manager, Engineer, Project Engineer, Project Manager, Engineering Manager etc) are the critical cultural factors in any construction projects. It is concluded that, there is an urge for a cultural flowchart map which depicts the sources of critical cultural factors and its impact on the construction project. Accordingly a cultural flowchart map has been developed and it is discussed.

Cultural flow chart map

From the review of literature, the major Cultural analysis and their impact are identified. The cultural flowchart map representing the cultural sources affecting the project success is shown in figure 2. This flow chart consists of various cultural factors, which are forecasted or inevitable. The evitable factors should be forecasted during the earlier stage of the project whereas the inevitable factors involve uncertainties; this should also be estimated for the successful completion of the project because

these cultural factors will affect the cost, time, quality of the project.

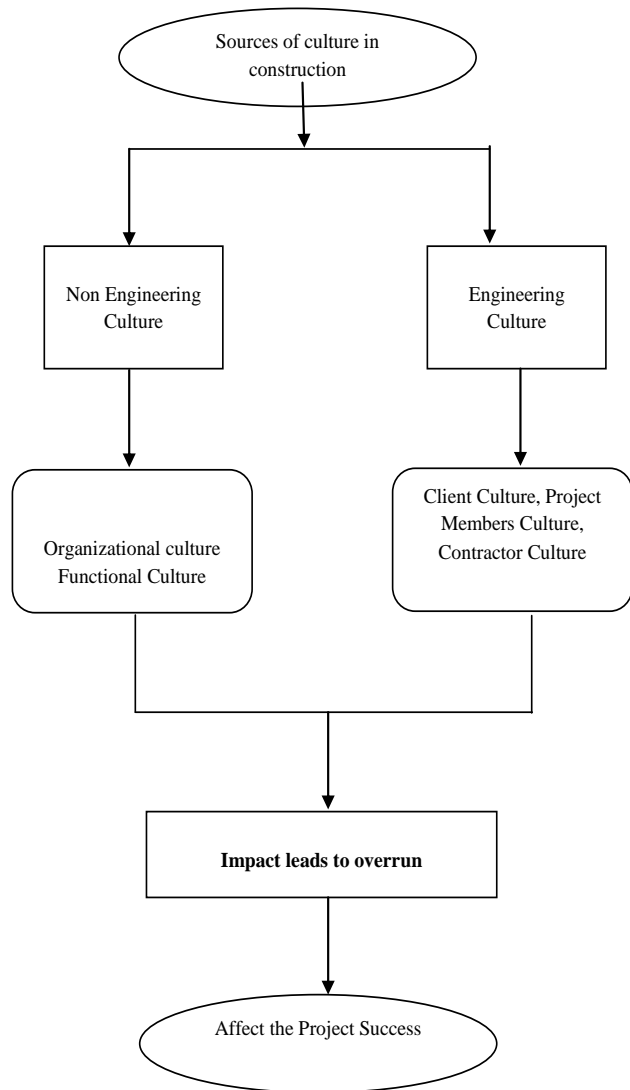


Figure 2. Cultural Flow Chart Map representing the cultural sources affecting the project success

Demographic information

Information on the profile of respondents in terms of age, gender, race, ethnicity, educational background and organizational category is presented in this section. The respondent's age distribution is shown in table 2. The findings show that almost 2% of the respondents were between the age of 18 and 24 years. This group also had the lowest responses. The low responses from the mentioned group could be that questionnaires were sent mainly to project and engineering managers. Most 18 to 24 year olds would normally not be in that category of professionals who were requested to participate in the present study.

The majority of respondents constituting 45.4% of all respondents were between the age of 25 and 34 years. This finding was not

surprising as most of the respondents were recruited from networks and contacts that had been formed by the researcher, whose age also falls within this group. In addition, it could be because the respondents found the topic to be interesting and therefore were keen to respond to the questionnaire.

In terms of the gender profile, findings show that there were more males and then females (Table 2) who took part in the study, accounting for about 88% of the respondents. Women contributed about 12% of the respondents. This finding was not surprising because the construction industry is said to be dominated by males. The other reason for this low participation from the females could be that not enough women received the questionnaires, which is in a way as a result of few women being involved in construction projects, and hence and lack of interaction.

The Respondents were also required to indicate their highest level of education, and these qualification distributions are shown in table 2. The figure shows that about 1.9% of the respondents had a Matric certificate, with the majority, over 90% of junior and senior management in the construction industry having a qualification higher than Matric. Most of the respondents had a post-graduate qualification accounting for 50.5%, while 37.4% of the respondents had an undergraduate qualification. The current study benefited from the unique feature of having respondents with such varying backgrounds and hence assuring and reliability of the study. Having between 6 and 10 years of experience accounted for 23.1% followed by those having between 11 to 20 years of experience. This category accounted for 25.9%. Finally, respondents having more than 20 years of experience accounted for 28.7%.

In the present study, it was important to establish which sectors of the built environment the respondents represented. As shown in Table 2, 51% of the respondents worked for consulting firms. The client organizations contributed about 30% and the contracting organizations contributed 18%, with the remainder 1% indicating 'other'. The majority of the respondents were engineers accounting for 33.3% (Table 2), 19.4% were project managers. 13.9% were engineering managers and 13% were project engineers. Only 6.5% were categorized as construction managers.

Table 2. Demographic information collected from respondents

Dimension	Total No. of Respondents	No. of Responses according to dimension	Percentage of Responses (%)
1. Age Distribution of Respondents			
a. 18 to 24		5	5
b. 25 to 34		50	50
c. 35 to 44		30	30
d. 45 to 54		15	15
Total	100	100	100
2. Respondents Gender			
a. Male		100	100
b. Female		0	0
Total	100	100	100
3. Respondents Highest Qualification			
a. Primary or Less		15	15
b. Matric		10	10
c. Junior College (Higher Secondary)		25	25
d. Diploma		30	30
e. Under Graduate		15	15
f. Post Graduate		5	5
Total	100	100	100
4. Respondents Experience in years			
a. Less than 5 years		60	60
b. 6 to 10 years		30	30
c. 11 to 20 years		10	10
d. More than 20 years		0	0
Total	100	100	100
5. Respondents Position (Role) in the project			
a. Foreman		10	10
b. Engineer		70	60
c. Construction Manager		5	5
d. Project Manager		5	5
e. Project Engineer		10	10
f. Engineering Manager		0	0
Total	100	100	100

Conclusions

The questionnaire survey from the four construction companies in Telangana was collected which reveals that statistically that there was 'strong correlation between the project culture and the project outcomes from the Construction industry practitioners' perspective. It is clear the practitioners focus on the process of the project as well as on the outcomes. However, the findings will show that the affordability of developing an appropriate project culture is a major concern of industry

practitioners. The incorporation of objective measures (e.g. key performance indicators) will help to validate the performance evaluation. A wider survey from more areas will be helpful to further validate the findings. In addition, it would be beneficial to have more in-depth interviews of parties other than contractors to further establish the nature of culture at the project level and its impacts on the project outcomes.

Conflicts of interest

The authors declare no conflict of interest.

References

- [1] Hofstede G. Cultural Constraints in Management Theories. *The Academy of Management Executive*.1993;7(1):81-94.
- [2] Fuber A, Smith S, Crapper M. A Case Study of the Impact of Cultural differences during a construction project in Ghana. In: Smith SD (Ed) *Proceedings of the ARCOM 28th Annual Conference*, Edinburg, UK: 2012.
- [3] Chang SY, Al Bahar SK, Husain AM, Zhao J. *Advances in Civil Engineering and Building Materials*. CRC Press; Hong Kong: 2014.
- [4] Renuka SM, Umarani C, Kamal S. A Review on Critical Risk Factors in the Life Cycle of Construction Projects. *Journal of Civil Engineering Research*. 2014;4(2):31-36.
- [5] Mustafa MA, Jamal F, Al-Bahar. Project Risk Assessment Using the Analytic Hierarchy Process. *IEEE Transactions on Engineering Management*. 1991;38(1):46-52.
- [6] Chapman JA. The Work of Managers in new Organizational Contexts. *Journal of Management Development*. 2001;20(1):55-68.
- [7] Mohammad R, Kirana K, Kamaruddin BH, Zainuddin A, Ghazali MC. The Mediatory Effect of Self-Efficacy on the Relationship between Religious Values and Entrepreneurial Orientations: A Case of Malay Owner Managers of SMEs in Manufacturing Industry. *Journal of Procedia-Social and Behavioral Sciences*. 2014;130(1):96-104.
- [8] Rezakhani P. Classifying Key Risk Factors in Construction Projects. *Journal of Buletinul Institutului Politehnic din Iasi Sectia Constructii Arhitectura*. 2012;58(2):27-38.
- [9] Joshua Goh OS, Andrew Hebrank C, Bradley Sutton P, Michael Chee WL, Sam Sim KY, Denise Park C. Culture-related differences in default network activity during visual-spatial judgments. *Journal of Social Cognitive Neuro Science*. 2013; 8(2):134-142.
- [10] Lazzerini B, Mkrtychyan L. Analyzing Risk Impact Factors Using Extended Fuzzy Cognitive Maps. *IEEE Systems Journals*. 2011;5(2):288-297.
- [11] Rezakhani P. A Review of Fuzzy Risk Assessment Models for Construction Projects. *Slovak Journal of Civil Engineering*.2012;20(3):35-40.
- [12] Abedi M, Mohamad MF, Fathi MS. Effects of Construction Delays on Construction Project Objectives. 1st Iranian Students Scientific Conference in Malaysia. UPM, Malaysia: 2011.
- [13] Dey PK. Benchmarking project management practices of Caribbean organizations using analytic hierarchy process. *Benchmarking: An International Journal*. 2002;9(4):326-356.
- [14] Ai Hasani M, Tularam GA, Regan M. Impact of Cultural Risk Factors on Project Success in the UAE Construction Industry. *Proceedings of the 22nd International Congress on Modeling and Simulation: Managing cumulative risks through model-based processes*, Hobart, Tasmania, Australia: 2017.
- [15] Trigunarsyah B. Organizational culture influence on client involvement. *Journal of Construction and Architectural Management*. 2017;24(6):1155-1169.
- [16] Zhao Y, Feng Y, Li C. Effect of organizational cultural differences and mutual trust on contract management of nonequity construction project alliances. *Journal of Advances in Civil Engineering*. 2018;8(1):80-88.
