OPEN ACCESS

International

Journal

Of Modern Engineering Research (IJMER)

An Investigation on the Outcome of Construction Projects Due To the Cultural Impact of Engineers In Karnataka

A. M. Naveen[1,*], P. Vidhyapriya[2], R. Somasundaram[3]

1Research Scholar, Department of Management Studies, KEC, Perundurai, Erode, India

2Associate Professor, Department of Management Studies, KEC, Perundurai, Erode

3Professor, Department of Management Studies, KEC, Perundurai, Erode, India

Corresponding Author: A.M Naveen

ABSTRACT: *Cultural impact on construction has recently received significant attention from researchers due to its vital role in the success or failure of a project. In the construction industry, several realistic observations have examined the influence of culture on project management. The aim of this study is to determine the effect of Engineer's culture on the outcome of construction projects in Karnataka. A total of 400 Engineers from different construction projects in Karnataka are interviewed with the help of semi-structured questionnaire. The findings reveal the influence and effect of engineer's culture is one of the most significant cultural factors affecting project performance and outcomes. Aligning goals commitment of engineer contributes to improved overall performance of construction projects. Commitment of engineer and cooperative approach enhance labor productivity, whereas aligning of goals ensure learning performance (i.e., learning from experience). The findings of this study may assist construction professionals in implementing practices that can contribute to the success of construction projects.*

Keywords- *Culture, Project Management, Construction Industry, Engineer, Project Performance, Construction Project, Outcomes.*

I. INTRODUCTION

Enginner's culture has become an important area of study in construction projects. Due to the fact contractors have to interact with multiple people, studies have found that engineer's culture plays a major role in the performance and efficiency of construction project delivery (Barthorpeet al, 1999). By observation and using deductive logic, Karnataka's construction project history, number of individuals of different cultures and background working in a project, Karnataka has developed a unique organizational culture in construction projects. The purpose of this paper is to show engineer's culture, has influence and impact on Karnataka's construction projects, to identify if the uniqueness of culture makes the Karnataka's construction project totally different from other projects and to suggest an outcome to overcome engineer's cultural influence and impact it is important to understand the impact of cultural and linguistic differences on performance (Comu Unsal and Taylor 2011). Thus there is need to study and better understand contractors culture in construction.

Summarizing the above review, although research regarding the phenomenon of culture and its effects on performance in particular could inform cultural change, such research has thus far been disparate and inadequate.

II. EXPLANATION FOR THE STUDY DESIGN

(2.1) Engineers Culture and its Identifications

The engineer's culture can be defined as, which can be said to be the pattern of interrelationships, authority and responsibility that is established between the clients, supervision with the engineer to achieve the project performance, objectives and outcome.

Engineer's culture includes engineer's behavior, skill and capabilities, principles, and morals that hold it together, and is expressed in its self-image, inner workings, interactions with the outside world, and future expectations. It is based on shared attitudes, beliefs, customs, and written and unwritten rules that have been developed over time and are considered valid.

For years, several studies have analyzed engineer's culture based on values and basic assumptions. Although engineer's values and basic assumptions are critical aspects of organizational culture in construction project. Moreover, it has been argued that engineer's values can be measured from work practices because significant aspects of values are often apparent from organizational practices This perspective was also supported by the agreement that the conventional view of culture, which concentrated on notions of shared values and beliefs, was inadequate; instead, engineer's culture should be considered from strongly operational perspective "as embodied in the organization's structures, mechanisms and practices". These operational aspects characterize culture in action and are more credible reflections of the engineer's culture than statements of values and beliefs, which may be out of step with culture as implemented. Taken together, these arguments reinforce the notion that consistent and widespread practices are reflections of engineer's culture. It is beneficial to approach culture from the perspective of engineer's practices because practices are more readily observable and measurable and can thus be compared across project and can be directly related to individual engineer.

Van den Berg and Wilderom define engineer's culture as a shared perception of contractors work practices within organizational units that may differ from others. In the domain of engineer's project management, the numerous CCFs(Critical Cultural Factors) that have been explored include factors associated with engineer's support, communication, relationships, participant involvement, and decision making all of which may be considered "cultural" factors that relate to the attitudes and behavior of engineer's in the project delivery process. As a result, the current study adopts a work practice-based approach to define engineer's culture in the following manner, based on the definitions offered by Kostova and van den Berg and Wilderom: the set of behaviors or attitudes observed in perceptions of practices shared by engineer's with project participants in particular ways that help explain or resolve the problems encountered during the course of a project. From this perspective of cultural identification, engineer with project participants' behavior is the key factor in determining engineer's culture within project organizations. The engineer's culture differences are believed to generate differences in participant behavior, potentially resulting misunderstandings between individual involved, which can in turn create conflict and dissatisfaction among participants of a construction project. Measuring cultural identifiers is thus expected to involve examining the level of engineer's behavior.

(2.2) Engineers Performance Measurement

Two models developed to measure engineer's project performance are the Comprehensive Efficiency Measurement and Key Efficiency Indicators. The Comprehensive Efficiency Measurement was developed by Pillai et al. to measure the performance of engineer's in India, while Key Efficiency Indicators (KEIs) are the UK construction industry's response to measure the efficiency of engineer's based on 10 identified specifications. The use of such indicators to evaluate engineer's efficiency and performance is very common. Many industries employ industry-specific KEI systems to measure process performance of engineer's that is critical to the success of a project. Notwithstanding their popularity, KEIs seem to be more appropriate for assessing performance at the project level. As a result, in this study, the KEIs are adapted with needing to consider the accessibility of data collection because of the multifaceted project's outcome. This method of determining performance indicators is considered a reasonable approach to assess the performance quality and success of a project.

Several researchers have suggested that engineer's should be added to the list of construction project performance indicators. Furthermore, engineer's performance should not only be singularly assessed by the achievement of measurable benefits but also assessed by considering the effectiveness of engineer's in sustaining performance improvements, such as their profitability, productivity of labor, and learning from experience. These performance indicators are used to measure project performance, and the most important indicators are viewed as the KEIs of construction projects. The performance measurement indexes adopted in this study are described in Table 1.

Table 1. Proposed Performance Identifiers.

Performance Identifier Employed by Engineers
Client Requirement fluffiness with quality
Client Requirement fluffiness with timeliness
Client Requirement fluffiness with cost
Client Requirement fluffiness with safety issues
Client Requirement fluffiness with profitability

III. LITERATURE REVIEW

Any Construction project is undertaken by engineers have different cultures and background (Loose More and Lee 2002). The different backgrounds such as age, gender, experience of engineer in the project has some kind of impact on the project outcomes. The engineer should know about his team

members in the construction projects to ensure that though teams made up of different views he can still work together to achieve one common goal, which is to deliver a successful project. According to Kivrah et. al (2009) engineer's cultural difference have been found to have an impact on construction project, either positive or negative manner at both the state level, national level and international level. What is critical is the engineer in construction project need to be aware of the role that different backgrounds could have an influence on project performance and outcomes.

According to Shahl et al. (2010:442) define engineer's culture as "values, beliefs and systems of meaning that are shared between engineer and a group of people in the project". In the construction industry, interpretation of situations and certain scenarios plays a critical role because not everything is black and white; people use their experiences or competencies to make an interpretation of a situation in order to provide suitable solutions for that particular problem. A question arises then that if according to the definition given above the interpretation of engineer with other members in the project is affected by a cultural value or belief; to what extent does this protrude into the work environment, in this case, construction projects during decision-making? According to Stare (2011) decision-making, thinking, feeling, response to opportunities and threats is affected by engineer's culture. Even the choice made about a person who will be executing a particular task is also affected, and this ultimately affects performance and decision making.

Culture also emerges as a result of a society's need of answer to problems that are common to all groups (Hofstede,1991) and determines who talks to whom about what and how the message is encoded from one party to the next (Loosemore and Lee,2002). In the construction industry this encoding of messages could be detrimental to the project if vital information is not communicated to the relevant people.

According to Barthorpe, Duncan and Miller (2000) culture is shared, learned, symbolic and tradition; it shapes behavior and can change over time. It is also argued that culture is hard to change (Lee-Keelley and Sankey, 2008). In Table 2, each culture's characteristics is described to illustrate its nature.

Table 2. Common Characteristics of Culture (Tone, 2005 citing Hodgetts and Luthans 2000)

Characteristics	Descriptions
Learned	Culture is not inherited or biological; it is acquired by learning and experience
Shared	People as member of a group, organization, or society share culture; it is not specific to single individuals
Trans-generational	Culture is cumulative, passed down from one generation to the next
Symbolic	Culture is based on the human capacity to symbolize or use one thing to represent another
Patterned	Culture has structure and is integrated; a change in one part will bring change in another
Adaptive	Culture is based on the human capacity to change or adapt, as opposed to the more genetically driven adaptive process of animals.

IV. OBJECTIVE OF THE STUDY

The objective of the study is to investigate

1.The impact of engineer's culture on project performance, execution and outcome of the projects in Karnataka.

Key issues affecting project performance were also identified. In order to do so, an official inspection was performed to find out where the organization currently stands and case study was conducted by using structured interview method in order to validate the results. Hence, the study was triangulated and the results presented here distil the key research issues and findings that came from this study.

V. RESEARCH DESIGN METHODS

(5.1) Data Collection

The influence of cultural factors identified by many researchers is done by interviewing 400 engineers' from different construction project in Karnataka by drafting questionnaire. From demographic it is understood that, factors like engineer's gender, engineer's age, engineer's qualification, engineer's experience are the critical factors in any construction project.

(5.2) Methodology Adopted

The current study adopted structured interview method to collect data. The concept was to ensure

questions were absolute to yield desired outcome. The interview with engineer's was conducted in two phases. In first phase general information of engineer's are collected. The main interview was conducted in the second phase of data collection. Engineer's were requested to answer (reply) on a five-point Likert scale. Engineer's were requested to rate to which they agree or disagree based on their currently ongoing project performance. Each of the scaling given a percentage to show the weightage of each answer.

The main objective of this study is to determine how the engineer's culture and commitment have impact on construction project performance in Karnataka. To achieve this objective, a structured interview was conducted with engineer's by interviewing face-face directly. The indicators used as variables for interviewing the engineer's are shown in Table.3.

Table 3. Dimension of Culture of Engineer

Dimension	**Description**
Age	The length of time that a person has lived since birth, i.e how old one is
Gender	State of being Male or Female. Has to do more with sexual orientation than a biological state.
Educational Background	This refers to the highest level of education obtained e.g.) Matric or Degree.
Position	This refers to designation of person in the project e.g.) Foreman, Engineer, Construction Manager, Project Manager.

(5.3) Demographic Information

The engineer's age distribution is shown in Table 4. The findings show that almost 5% of the engineer's 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 questions were asked mainly to engineers. Most 18 to 24 year olds would normally not be in that category of professionals who were requested to participate in the study. The majority of engineer's constituting 50.0% of all contractors were between the age of 25 and 34 years.

In terms of the gender profile, findings show that there were more males and only few females (Table 4.) who took part in the study (currently ongoing) project, accounting for about 80% of the engineer's are males, which is in a way as a result of only few women being involved in construction projects in India as engineer's , and hence lack of interaction.

The engineer's were also required to tell their highest level of education, and these qualification distributions are shown in Table 4 below. The Table 4 shows that about 25.0% of the engineer's had a diploma certificate, over 75.0% of engineer's in the construction industry having a qualification higher than diploma. Out of which most of the engineers had under graduate qualification accounting for 50.0%, while only 15.0% of the engineers had post graduate degree. This group also had the lowest responses. The current study benefited from the unique feature of having engineer's with such varying backgrounds and hence assuring and reliability of the study. In Table 4.below, the engineer's experience in construction. 40 % of engineer's are having Less than 5 years of experience. Between 6 and 10 years of experience accounted for 10. % followed by those having between 11 to 20 years of experience. This category accounted for 10.0%. Finally, engineer's having more than 20 years of experience accounted for 40.00%.

Table 4. Demographic Information Collected from 400 Engineers

Dimension	**Total Number of Engineers**	**No of Responses according to dimension**	**Percentage of Responses**
1. Age Distribution of Engineers			
a. 18 to 24		20	5%
b. 25 to 34		200	50%
c. 35 to 44		120	30%
d. 45 to 54		60	15%
Total	400	400	100%
2. Engineers Gender			
a. Male		320	80%
b. Female		80	20%
Total	400	400	100%
3. Engineers Highest Qualification			
a. Diploma		100	25%
b. Under Graduate		240	60%
c. Post Graduate		60	15%

Total	400	400	100
4. Engineers Experience in years			
a. Less than 5 years		240	40%
b. 6 to 10 years		120	10%
c. 11 to 20 years		40	10%
d. More than 20 years		0	40%
Total	400	400	100

(5.4) Engineers Cultural Background on the Project

Table 5. Rating of Cultural Element on the Project

Dimension	Statement: According to engineers experience on Construction project , He state that	Total Sum of Responses	Mean Average	Ranking
Gender	Colleagues with a different gender from me view project quality differently	400	2.41	8
	Colleagues with a different gender from me view and treat cost implications differently	400	2.49	7
	Colleagues with a different gender from me view time differently	400	2.58	6
	Colleagues with a different gender from me view safety differently	400	2.20	9
Age	Project members with different age group than me view quality differently	400	3.08	2
	Project members with a different gender from me view and treat cost implications differently	400	2.99	4
	Project members with a different gender from me view time differently	400	3.05	3
	Project members with a different gender from me view safety differently	400	2.77	5
Educational Background	Project members who have a different educational background and qualification from me view project performance differently.	400	3.47	1
		Avg	**2.7822**	

(5.4.1) Gender Gender is one of the elements evaluated relative to its influence on schedule, cost, and quality and safety. When engineers asked individuals with different gender on projects view quality differently the result presented in Table 5. Above shows that 19.4% of the engineers 'agreed', 12.6% were neutral, while 67.9% 'disagreed'. The engineers were also asked whether individuals with different gender on projects view cost differently and result presented in Table above show that 17.6% 'agreed' , 18.6% neither agreed or disagreed, while 63.7% 'disagreed' with the statement. On the same point of gender, 23.3% of engineers agreed that individuals with a different gender on the project view time differently, 15.5% were neutral, while 61.2% 'disagreed'. For the statement "colleagues with a different gender from mine on my project view safety differently", 15% of the engineers 'agreed', 13% neutral, while 72% 'disagreed' with the statement.

(5.4.2) Age Another element evaluated relative to its influence on schedule, cost, quality and safety was age. The engineers were also asked whether people with different age group on project view quality differently. The result presented in Table 5 above show that 45.6% of the engineers 'agreed', 14.6% were neutral, while 39.8% 'disagreed'. When asked whether people from a different age group on project view cost differently, the result showed that 38% of the engineers 'agreed', 19% neutral, while 43% 'disagreed'. On the same point of age 43.7% of engineers 'agreed' that people from different age group on project view time differently, while 15.5% were neutral, and 40.8% 'disagreed' with the statement. The result presented in Table 5 above show that 34% of the engineers 'agreed' with the statement that people from a different age group on project view safety differently, while 15.5% were neutral and 50% 'disagreed' with the statement.

(5.4.3) Educational Background Engineers were asked whether people from different educational background and having different qualification on project view project performance differently. The result presented in Table 5 above show that 62.4% of the engineers 'agreed' that people with a different educational background and qualification view project performance differently, 11.9% neutral, while 25.8% 'disagreed' with the statement.

In cultural background influence on project, as per data collected through interviews and the results were presented in Table 5. These were presented in following engineer's age, gender and educational background's

influence on project performance. The result showed a difference between mean average result and those of the ratings.

VI. CONCLUSION

Engineer's Culture has the major potential effect on the execution construction business activities. Therefore, engineers in construction have to consider the cultural issues in their daily businesses to operate successfully in the global marketplace. This study is based on interviews with contractors from different construction projects in Karnataka. The analysis of the interviews showed that engineers cultural influence have an impact in construction but in different levels. The results of the study could be summarized as follows:

- There is a direct relationship between project success and contractors cultural influence. Understanding, respecting and accepting different cultures are key issues for managing projects successfully when doing business with people from different cultural backgrounds.
- Ignoring and mismanaging contractors cultural differences can lead to project failures.
- Cultural differences of engineers can have an effect on all management practices.
- The engineers should have knowledge sharing, innovation and problem-solving while working in multi-national or International projects.
- Language differences and miscommunication were considered as important problems when engineers are working with people from different cultures.

There is lack of cultural training programmes to engineers in the majority of of construction companies. The questionnaire survey from 400 contractors of different construction projects in Karnataka is collected which reveals that statically that there is 'strong correlation between the engineers culture with project outcome perspective'. The incorporation of objective means (Key Efficiency Indicators) will help to validate the performance evaluation of engineer's cultural influence on project. 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 interview with members of the project other than contractors to further establish the nature of culture at project level and impact on project outcomes.

REFERENCES

[1]. *Geert Hofstede, The Cultural Relativity of Organizational Practices and Theories. Journal of International Business Studies,* 14, 75-89, 1983.

[2]. *Agaz Stare, The Impact of the Organizational Structure and Project Organizational Culture on Project Performance in Slovenian Enterprises. Journal of Project Management*,16, 1-22, 2000.

[3]. *Stephen Barthorpe.; Rosanna Duncan.; Christopher Miller, The Pluralistic facets of Culture and its Impact on Construction. Journal of Property Management*, 18, 335-351., 2000.

[4]. *Phua, F.T.T.; Loosemore, M.; Dunn, K.; Ozguc,U, Barriers to Integration and Attitudes towards Cultural Diversity in the Construction Industry. International Journal of Project Management*, 2, 414-422, 2002.

[5]. *Edwin, H.W. Chan,; Raymond Y.C. Tse, Cultural Considerations in International Construction Contracts. Journal of Construction Engineering and Management*, 4, 375-381, 2003.

[6]. *Peter, T. Van Den Berg.; Celeste P.M. Wilderom, Defining Measuring and Comparing Organizational Cultures . International Association for Applied Psychology*, 53, 570-582, 2004.

[7]. *Ibrahim, A.R.B.; Roy, M.H.; Ahmed, Z.; Imtiaz, G. An investigation of the status of the Malaysian construction industry. Bench-marking*, 17, 294–308, 2007. [*Cross Ref*]

[8]. *Kashiwagi, D.; Kashiwagi, J.; Smithwick, J.; Kashiwagi, I.; Kashiwagi, A. The source of degradation of the construction industry performance. J. Adv. Perform. Inf. Value*, 4, 206–222, 2012.

[9]. *Jin Ouk Choi.; Ghada M. Gad.; Jennifer, S.Shane.; Kelly,C. Strong, .Culture and Organizational Culture in the construction Industry: A Literature Review Paper read at Proceedings of the* 5th *International Conference, Vancouver, British Columbia*, 2015.

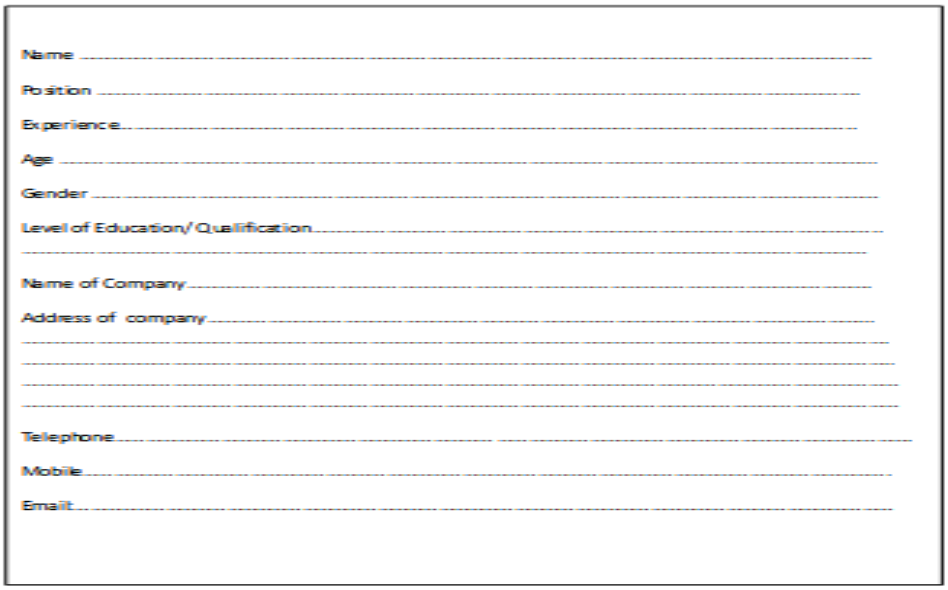
Appendix (Questionnaire)

Section A –Demography

A questionnaire of impact of engineer's culture and commitment on the performance of construction projects in Karnataka.

The questionnaire is in two parts Section A and B Section A is related to personal information about Engineer. Section B is with respect to provide some information about recently completed construction project with respect to Engineer.

Table 6. General Information Of Engineer


Name .....

Position .....

Experience.....

Age .....

Gender .....

Level of Education/ Qualification.....

.....

Name of Company.....

Address of company.....

.....

.....

.....

.....

Telephone.....

Mobile.....

Email:.....

Section B – Survey

Table 7. Likert Scale

Strongly Disagree (0to 30%)	1
Disagree (30to50%)	2
Neutral (50%)	3
Agree (50to80%)	4
Strongly agree (80to 100%)	5

Table 8. Consideration of Team Members Background on Projects

Dimension	**Statement: According to Engineer experience on Construction project, He state that**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
		5	**4**	**3**	**2**	**1**
Gender	Gender is a factor in the allocation of tasks to project team members					
	My opinion is considered on the project regardless of my gender					
Age	Age is a factor in the allocation of task on the project					
	My opinion is considered on the project regardless of my age					
Race/Ethnicity	My opinion is considered on the project regardless of my race					
	My opinion is considered on the project regardless of					

	my ethnicity					
Educational Background	My opinion is considered on the project regardless of my qualification					

Table 9. Team Dynamics

Dimension	**Statement: According to Engineer experience on Construction project, He state that**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
		5	**4**	**3**	**2**	**1**
Communication	I could easily communicate with all team members on the project					
	All project team members easily communicate with other team members on the project regardless of race, gender, age or ethnicity					
	Despite the difference in age among team members, communication is not hindered between them.					
Trust	Due to our cultural differences, Trust has been affected within the project team.					
	Due our differences in organizational cultural background, Trust has been affected within the project team.					
Knowledge Sharing	I could share information with all project members without hindrance from gender differences					
	I could share information with all project members without hindrance from age differences					
	I could share information with all project members without hindrance from differences ethnicity					

Table 9. Team Dynamics (Continues)

Dimension	**Statement: According to Engineer experience on Construction project, He state that**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
		5	**4**	**3**	**2**	**1**
Knowledge Sharing	I could share knowledge with other project members regardless of my gender.					

	I could share my knowledge with other project members regardless of my qualification.					
Integration	I could form a good project team despite difference in background					
	Our cultural background difference have affected integration as a team					

Table 10. Cultural Backgrounds Influence on Project

Dimension	**Statement: According to Engineer experience on Construction project, He think**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
		5	**4**	**3**	**2**	**1**
Gender	Colleagues with a different gender from me view project quality differently					
	Colleagues with a different gender from me view and treat cost implications differently					
	Colleagues with a different gender from me view time differently					
	Colleagues with a different gender from me view safety differently					
Age	Project members with different age group than me view quality differently					
	Project members with a different gender from me view and treat cost implications differently					
	Project members with a different gender from me view time differently					

Table 10. Cultural Backgrounds Influence on project (Continues)

Dimension	**Statement: According to Engineer experience on Construction**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**

	project, He state that					
		5	**4**	**3**	**2**	**1**
Age	Project members with a different gender from me view safety differently					
Race/ Ethnicity	Project members from other ethnic background than me view quality differently					
	Project members from other ethnic background than me view cost implications differently					
	Project members from other ethnic background than me view cost time differently					
	Project members from other ethnic background than me view safety differently					
Educational background	Project members who have a different educational background and qualification from me view project performance differently.					

Table 11.Cultural Backgrounds Influence on Decision Making in Projects

Dimension	**Statement: According to Engineer experience on Construction project, He state that**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
		5	**4**	**3**	**2**	**1**
Gender	Gender differences between project team members affects how decision are made on projects					
Age	Age differences between project team members affects how decision are made on projects					
Race/Ethnicity	Ethnic Background of project team members affects how decision are made on projects					

Table 11. Cultural Backgrounds Influence on Decision Making in projects (Continues)

Dimension	**Statement: According to Engineer experience on Construction project, He state that**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
		5	**4**	**3**	**2**	**1**
Race/Ethnicity	Racial Differences between project team members affects how decision are made on projects					
Educational Background	Different educational backgrounds between project team members affects how decision are made on					

Dimension	**Statement: According to Engineer experience on Construction project, He state that**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
		5	**4**	**3**	**2**	**1**
	projects					
Organizational Culture	Organizational Culture Differences between project team members affects how decision are made on projects					

Table 12. Project Performance

Dimension	**Statement: According to Engineer experience on Construction project, He state that**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
		5	**4**	**3**	**2**	**1**
Schedule	His project team members always achieve schedule commitments regardless of the stipulated time					
	His project team members complete their project within the stipulated time					
	His project team members complete their projects within time regardless of cost overrun and defect implications					
Cost	His project team members complete their project within the stipulated budget					
	His project team members complete their project within the stipulated budget regardless of quality and schedule slippage					

Table 12. Project Performance (Continues)

Dimension	**Statement: According to Engineer experience on Construction project, He state that**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
		5	**4**	**3**	**2**	**1**
Quality	His team members complete their project within the specified quality					
	His team members complete their project within the specified quality regardless of time and cost implications					
Safety	His team members complete their project safely without any incidents or accidents					
Productivity	His team members achieve their level of productivity by the end of each day					
Project Team Satisfaction	His team members always achieve an integrated team at the end of the project					
	His team members are happy					

	at the end of the project					
	Knowledge transfer is always achieved between project team members on a project					

A.M Naveen.“ An Investigation on the Outcome of Construction Projects Due To the Cultural Impact of Engineers in Karnataka” International Journal Of Modern Engineering Research (IJMER), vol. 08, no. 01, 2018, pp. 07–18.