

CONCEPTUAL FRAMEWORK FOR UNDERSTANDING CONSTRUCTION PROJECT CULTURE: A LITERATURE REVIEW

A.U.A.A. Samaraweera* and Y.G. Sandanayake

Department of Building Economics, University of Moratuwa, Sri Lanka

Sepani Senaratne

School of Computing, Engineering and Mathematics, University of Western Sydney, Australia

ABSTRACT

Complex human behaviours and thoughts bound by the complex construction activities have made the topic “construction project culture” an ambiguous area in the construction management literature. Despite of a several few attempts, definition of the construction project culture still remains as an area to be unveiled. This paper attempts to provide a conceptual framework for understanding construction project culture by highlighting few questions to be answered in the process of defining a project culture. The initial question raised is; ‘what cultural manifestations in deed represent construction project culture?’ next; ‘how does construction project culture exists: its structure?’ and, finally; ‘how does construction project culture emerges?’. These questions have been answered by an extensive literature review emphasising; underlying assumptions to give the true representation of construction project culture which is structured in sub-cultural groups that could be analysed in integrated, differentiated and fragmented perspectives and arguing its emergence to be with the project team efforts of answering internal integration and external adaptation problems of the project team itself. Further research of this paper will aim developing methodological frameworks to carry out empirical studies to answer the highlighted research questions and to bring empirical evidence to what the construction project culture is.

Keywords: Construction; Project Culture; Project Team.

1. INTRODUCTION

Construction literature provides several attempts in defining construction project culture. Zuo and Zillante (2005, p.357) defines construction project culture as; “the shared values, basic assumptions and beliefs that the participants involved in a project hold that determine the way they process the project and the relationship with each other in the project environment.” This definition goes in line with the definition of culture given by Hofstede (2011, p.3) in generic terms as; “the collective programming of the mind that distinguishes the members of one group or category of people from others” and organisational culture as; “the way people perceive what goes on in their organisational environment”. However, Martine (2002) argues against studying culture as a shared phenomenon as has done by Hofstede (2011) and Zuo and Zillante (2005). Martine (2002) states that cultural studies in depth would not exhibit consistency. According the Martine (2002), shared culture is brought in only a part of culture which most of the times created by a top level member of an organisation or a group vesting power on the other members of the group where this top level members would be an unrepresentative sample of a given culture. This brings in the problem whether shared culture is still valid with the construction project culture.

The next problem with the aforementioned definitions was that those include many cultural manifestations such as beliefs, values and assumptions in the definition of project culture with reference to construction. Ankrah *et al.* (2009) discussed the artefacts or the cultural form in understanding culture at project level in construction setting. Further, Marrewijk (2006) in the elaboration of the two cultural episodes in Evinron mega construction project, uses the classification of cultural manifestations of Martin (2002); cultural forms, practices and content themes. However, at conclusion drawing, Marrewijk (2006) only refers to the content themes - specifically value orientations of the two episodes to elaborate the culture. This gives the

*Corresponding Author: E-mail - aparna.samaraweera@gmail.com

notion that cultural forms and practices do not provide the ultimate definition of a project culture. Schein (1984) depicts that to really understand a culture and to establish more completely the group values and explicit behaviour, it is vital to dig into the underlying assumptions, which are really unconscious but which actually determine how group members perceive, think and feel. Therefore, this gives rise to the problem which really depicts construction project culture out of the number of cultural manifestations available.

Zuo (2008) brings in the definition stated by Zuo and Zillante (2005) to develop a framework to understand construction project culture. This model includes some cultural dimensions related to the way participants process the project and the relationship between participants in the project environment. It is because, Zuo (2008) argued culture to emerge as the way the project participants process the project and the relationship with each other in the project environment. However, the model of construction project culture proposed by Zuo (2008) does not discuss the cultural aspect of “power”, which is one of the most important contributor to the culture as discussed by Schein (1983) related to the internal and external problems that shape-up the culture of a group. Even the model by Zuo (2008) is only relevant to relational types of contracts. In contrast, Ankrah *et al.* (2009) state that different procurement routes do not result in different cultural orientations. In addition, Ankrah *et al.* (2009) bring in some factors affecting the construction project culture which are worth looking into in the process of defining a project culture. Therefore, this raise the problem how construction project culture actually emerges.

Hence, this paper intends to bring in literal analysis and arguments to answer the questions:

- 1) What cultural manifestations in deed represent construction project culture?
- 2) How is the construction project culture organised?
- 3) How does construction project culture emerges?

Finally, a conceptual framework for understanding construction project culture would be presented.

This paper is structured in six sections, initially the complexity of culture in construction is explained and then, cultural manifestations of construction project culture are discussed. Next, an insight into the project culture through a discussion of its components and structure is presented. Thereafter, attention is drawn to how construction project culture could emerge and next an analysis into the existing construction project cultural frameworks is done. Finally, the conclusions have been drawn presenting the conceptual framework for construction project culture.

2. WHAT REALLY DESCRIBE CONSTRUCTION PROJECT CULTURE?

Culture is visible as a set of manifestations. Basically, the long list of cultural manifestations includes values, norms, basic assumptions, relationships, patterns of behaviours, rituals, heroes, symbols and formal practices such as; pay levels, structure of the hierarchy, job descriptions, and other written policies (Hofstede, 1980; Marrewijk, 2006; Martin, 2004; Zuo, 2008). Many researchers have tried to define culture by using these cultural manifestations. For example, Duarte and Snyder (1999 cited Zuo, 2008) defines culture as a set of learned mores, values, attitudes and meanings that are shared by the members of a group where culture is often one of the primary ways to differentiate one group from another.

With regard to a construction project culture, Marrewijk (2007) comes-up with the two episodes of culture of one Environ mega project in-relation to the cultural classification of cultural forms, practices and content themes introduced by Martine (2004). Here, Marrewijk (2007) indicates the presence of two dominant cultural episodes. The episode of the Gideon’s gang (1996-2001) was dominant for innovative and entrepreneurial value orientations related to the content themes and during the episode of the Diplomats (2001-2004) these new value orientations replaced the former project culture during the realisation phase with control, financial, accountability, integrity, stability and lawfulness. However, mere presentation of these groups of cultural manifestations adds no value where the in-depth analysis of culture requires the understanding the relationship between these cultural manifestations.

Accordingly, Schein (2004, 1990, 1984) describes that these cultural manifestations can be identified in three levels as; ‘visible artefacts’ in the primary level, ‘espoused values’ in the next level and ‘underline assumptions’ in the highest level giving the proper interpretation to the exact organisational culture. Schein (1984)’s elaborations focus on what artefacts and values reveal about basic assumptions i.e. values of an individual or a group lead to behaviour and when the behaviour begins to solve the problem which led the

behaviour in first instance, that value is transformed into an underlying assumption (Hatch, 1993). Further, as he describes, analysing these visible artefacts, it is possible to answer “how” a group constructs its environment and “what” behaviour patterns are visible among the members. However, to answer the question “why” a group behaves in a certain manner, it is required to analyse the espoused values and basic assumptions (Schein, 1984).

As per Schein (1983) and Martin (2002), it is the underlying assumptions that really helps to understand what the culture of a given group is and trying to interpret culture based on the artefacts, behavior patterns and behavioural norms which include the visible part of the culture is regarded as being misleading. Hofstede (1980) also refers these underlying assumptions as ‘taken for granted values’. Schein (1983, 1984) explains basic assumptions as mostly unconscious and are taught to new members as a reality and as the correct way to view things. Values become apparent by interviewing key members of the organisation to identify the reasons for the behavior of the members. Nevertheless, to really understand the culture, it is important to identify the underlying assumptions.

Considering the importance of inner layers in culture, many researchers tried to interpret culture using values and underlying assumptions (refer Rokeach, 1979; Schwartz, 1994; Hills, 2002). Since underlying assumptions are the taken for granted values it is important to understand values in detail to really understand what underlying assumptions are. Values are micro-macro concepts. At the micro level of individual behaviour, values are motivating as internalised standards that reconcile a person’s needs with the demands of social life. They allow individuals to evaluate the options that are available to them for action. At the macro level of cultural practices, values represent shared understandings that give meaning, order and integration to social living. (Parashar *et al.*, 2004). Therefore, a value is an enduring belief in an individual or a group which gives preference to a course of action or thought to its opposite.

As stated by Hills (2002), Rokeach’s (1979) thirty-six values are at most 36 values held by human beings and they are considered to be widely, and perhaps universally held. According to Yeganeh (2009), the most important characteristic of Schwarz’s (1994) model of human values is that he studied both the content and structure of human values. The content of every value is related to the criteria people take into account when evaluating a situation or taking an action. By contrast, the structure is related to the organisation of these values based on their similarities and differences.

Value orientation theory by Kluckhohn and Strodtbeck (1961) is one of the most important theory of basic human values which has been very influential in the field of value research. Initially, they have put forward some three basic assumptions (Hills, 2002, p.4): "there is a limited number of common human problems for which all people must at all times find some solution"; "while there is variability in solutions of all the problems, it is neither limitless nor random but is definitely variable within a range of possible solutions" and "all alternatives of all solutions are present in all societies at all times but are differentially preferred". Further, Kluckhohn and Strodtbeck (1961 cited Maznevski *et al.*, 2002, p.276) suggested six basic types of problems to be solved by every society together with possible three orientations for the same described as: 1) What is the nature of human beings: are they good, evil or neutral?; 2) What is our relationship to nature: are we subjugated to nature, in harmony with nature, or do we have mastery over it?; 3) What is our relationship to other human beings: is it lineal (ordered position within groups), collateral (primacy given to goals and welfare of groups), or individualistic (primacy given to the individual)?; 4) What is our primary mode of activity: is our basic orientation one of being-in-becoming, doing or reflecting?; 5) How do we view time: do we focus on the past, present, or future?; and 6) How do we think about space: is it public, private, or mixed?.

Having set out this value orientation theory, Kluckhohn and Strodtbeck (1961 cited Hills, 2002) then proposed a means of measuring the orientations it produced which are considered as a universal set of human values. They suggested intensive interviewing be used with a series of probing questions exploring each of the value dimensions with the interviewee. However, they also recognised that many people find it difficult to think in the abstract, so suggested that real-life situations be outlined which involved the particular value being investigated. Many of the researchers who made the attempt to capture values to interpret culture has followed the work of Kluckhohn and Strodtbeck (1961) (refer Schein, 1984; Hofstede, 1980). Considering the comprehensiveness, exclusiveness of dimensions, parsimony and possible application for individual and aggregate levels of the said theory (Maznevski *et al.*, 2002), studying culture of construction project culture could be done following the value orientation theory. Schein (1984)

identified a set of such underlying assumptions of organisational culture some of which are summarised in Table 1. Also, Hills (2002) has identified some different individual cultural underlying assumptions which are not included in Schein (1984)'s work. Fellow and Liu (2013, p.401) states that; "culture determines how we communicate, how we relate to other people, how we regard property, our interaction with the environment, and our perspectives of time The buildings we construct are potent symbols of culture". This statement better describe the importance of learning the underlying assumptions of the construction project team members because underlying assumptions could reason out all those actions mentioned by Fellow and Liu (2013). Hence, it is evident that understanding culture through values and underlying assumptions rather than elaborating merely through artefacts and behavioural features give lot of insight into the culture. However, as depicted by Fellow *et al.* (2007) another factor creating the complexity in culture of a construction project seems to be through the existence of different levels of culture on a construction project, which is discussed in detail next.

Table 1: Underlying Assumptions of Organisational Culture

Dimension	Questions to be Answered	Orientations
The organisation's relationship to its environment	Does the organisation perceive itself to be dominant, submissive, harmonising, searching out a niche?	Dominant, Submissive, Harmonising, Searching, out a niche
The nature of human Activity	Is the "correct" way for humans to behave to be dominant/pro-active, harmonising, or passive/fatalistic?	Dominant/pro-active, Harmonising, Passive/fatalistic
The nature of reality and truth	How do we define what is true and what is not true; and how is truth ultimately determined both in the physical and social world? By pragmatic test, reliance on wisdom, or social consensus?	Pragmatic test, Reliance on wisdom, Social consensus
The nature of time	What is our basic orientation in terms of past, present, and future, and what kinds of time units are most relevant for the conduct of daily affairs?	Past, Present, Future
The nature of human Nature	Are humans basically good, neutral, or evil, and is human nature perfectible or fixed?	Good, Neutral, Evil
The nature of human relationships	What is the "correct" way for people to relate to each other, to distribute power and affection? Is life competitive or cooperative?	Competitive, Cooperative
	Is the best way to organise society on the basis of individualism or groupism?	Individualism, Groupism
	Is the best authority system autocratic/paternalistic or collegial/participative?	Autocratic/paternalistic, Collegial/participative

Source: Adapted from Schein (1983)

3. HOW IS THE CONSTRUCTION PROJECT CULTURE ORGANISED?

The project culture seems to be affected by different cultures at different levels including national culture, industry culture, organisational culture and professional culture. Ofori and Toor (2009) identify the importance of understanding levels of culture and their relationship in defining the culture in a cross-cultural construction project setting. They explain that in a major construction project when members from different countries participate, it would be inappropriate to define a culture at national level because, although foreigners from different countries adopt the local culture, they still maintain some ties with their roots. In addition, when a construction project team is formed with different participants from different organisations, many difficulties seem to arise due to the conflicts of different business objectives and lack of sensitivity and tolerance of difference between participants. This highlights the importance of understanding organisational culture for successful project management (Fellow *et al.*, 2007). Further, Rameezdeen and Gunarathna (2003) elaborate that consultancy organisations in Sri Lanka believe that their success depend on the development of human resources for achieving specific goals of the organisation which emphasises on a culture with loyalty, value traditions and openness. In contrast, contracting organisations are driven towards output maximisation where they encourage a competitive work

environment and culture. Moreover, Ankrah and Langford (2005), who studied on architectural and contracting organisations, explain that major differences exist in these two organisation types not only in its structure but also in people issues. Hence, it is apparent that organisational cultures have an impact on the project culture.

Kumaraswamy *et al.* (2002 cited Ankrah *et al.*, 2009) have attempted to define construction project culture by looking at these impacts from different levels of culture. They identified ‘organisational’, ‘professional’, ‘operational’ and ‘individualistic’ sub-cultures as the principal elements that come together to evolve the culture within a construction project as depicted in Figure 1.

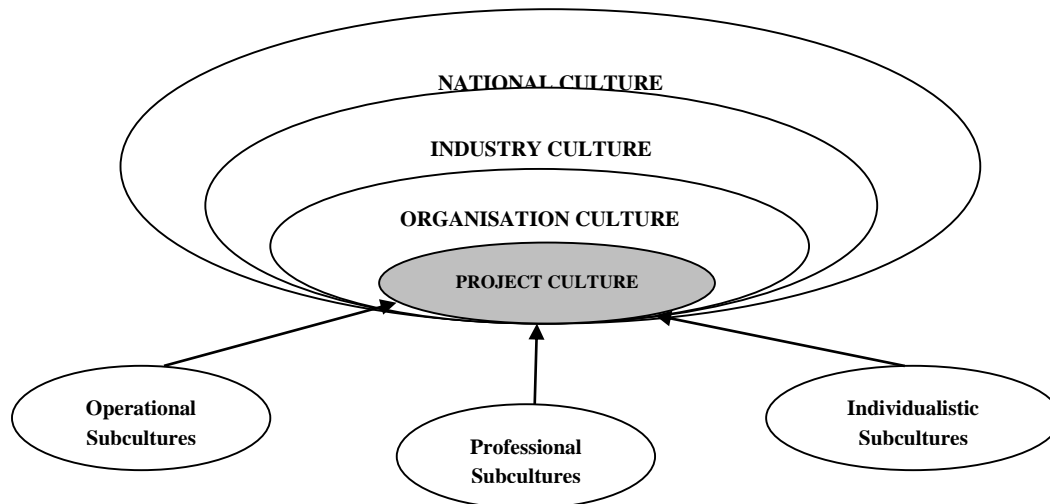


Figure 1: Sources of Typical Construction Project Culture
Source: Adapted from Zuo and Zillante (2005, p.357)

Here they argue that ‘organisational sub-cultures’ is mainly influenced by national culture and industry culture. At the same time, project culture could be affected by three other cultures: professional, operational and individual. ‘Professional sub-cultures’ are influenced by factors such as the type of members, origin and history and type of task/function. ‘Operational sub-cultures’ could comprise of quality culture, safety culture, and learning culture. ‘Individualistic sub-cultures’ are influenced by factors such as national culture, ethnic factors, social status and religion. As explained by Kumaraswamy *et al.* (2002 cited Zuo and Zillante, 2005), a number of components contribute to each sub-culture, where one or more sub-cultures may dominate, depending on their ‘relative strengths’. Thereby, Hofstede’s cultural model (1980, 1991) could be first used to assess the culture in each sub-culture and then to assess the whole project culture. Though the aforesaid framework seems insightful, it does not make the task of identifying and investigating the drivers of culture within the project easy.

Schein (1996) bring forward another interpretation of sub-cultures related to different occupations within an organisation. These occupational sub-culture are more similar to professional sub-culture depicted by Kumaraswamy *et al.* (2002 cited Ankrah *et al.*, 2009). These sub-cultures of Schein (1996) included ‘engineers’ (technocrats) who design and monitor the technology supporting an organisation’s operations; ‘operators’ who deliver products and services; and ‘executives’ who primarily focus on financial performance which was called engineering culture, operator culture and executive culture respectively. According to Schein (1996) organisational learning and change failures were primarily due to inadequate understanding of occupational cultures existing within organisations. It is because these occupational groups hold different views and interpret differently the same aspect due to the difference in their professional background differences which results in communication problems. Some shared assumptions stated by Schein (1996) include; related to engineers as; ‘engineers prefer linear, simple cause-and-effect, quantitative thinking’, ‘engineers are safety oriented and overdesign for safety’ related operators as; ‘success of the enterprise depends on people’s knowledge, skill, learning ability, and commitment’, ‘operators must be able to work as a collaborative team’ and related to executives as; ‘executives focus

on financial survival and growth to ensure returns to shareholders and to society’ and ‘people are a necessary evil, not an intrinsic value’.

A similar classification could be brought into construction project team where the project manager, client’s representatives, donors could be considered as executives who more in to financial performance and consultants as engineers and contractor and his personnel as operators. This argument is very much similar to considering ‘professional culture’ as the dominant sub-culture in construction project cultural model of Kumaraswamy *et al.* (2002 cited Ankrah *et al.*, 2009). However, whether ‘professional culture’ the dominant sub-culture in construction project team is again an argument.

This existence of sub-culture groups in an organisations and project teams affects the shared view of culture put-forward by many researchers including Hofstede (1980) and Schein (1984). However, Martin (2004) disagrees with the definition of culture as a “shared” thing among the members of the organisation. As she depicts, all of these cultural manifestations are interpreted, evaluated, and enacted in varying ways because cultural members have differing interests, experiences, responsibilities and values. Further, more importantly, culture consists of the patterns of meanings that link these manifestations together, sometimes in harmony, sometimes in bitter conflicts between groups, and sometimes in webs of ambiguity, paradox, and contradiction. For these reasons, it is much too simple to define culture in unifying, harmonious terms, for example, in terms of values that are espoused by management and apparently shared by most employees. Therefore, it is worth looking into these three perspectives of culture explained by Martine (2004).

Martin (2002) conceptualise culture from three different perspectives; integration, differentiation, and fragmentation. The perspectives are complementary, in that each allows the researcher to investigate the blind spots inherent in the others (Kappos and Rivard, 2007). Integration refers to interpretations that lead to consensus across the whole collective. No ambiguity exists in members’ interpretations of the manifestations and interpretations are clear to all. (Martin, 2002). Differentiation does not assume a collective-wide consensus on interpretations of the manifestations. This perspective concerns those interpretations of manifestations that lead to a consensus only at the sub-cultural level (Martin, 2002). Fragmentation assumes that vague interpretations of manifestations by members of the collective are unavoidable. The members of an organisation could interpret the manifestations in a number of different ways, thus never delineating islands of consensus, consistency, or clarity (Martin, 2002).

A case study of three retailing organisations done by Harris and Ogbonna (1998) found that that each of Martin’s (2002) three perspectives corresponds to different hierarchical positions. The study of head office personnel found that they tend to adopt an integration perspective on organisational culture i.e., culture is viewed in terms of consensus and consistency. The store managers commonly adopted a differentiation perspective on organisational culture i.e. store managers view culture as dichotomous, inconsistent and characterised by subcultural consensus. Finally, shop floor workers tend to exhibit a fragmentation perspective on organisational culture where the views of shop floor workers tend to focus on the ambiguity, fluidity and complexity of organisational culture.

Hence, analysing construction project culture using the three perspective theory could bring in lot of insight in to the project culture. Similarly, a better understanding of how culture emerges would be another important area to be analysed in to in order to unveil the cultural stance. This would be discussed in next section.

4. HOW DOES CONSTRUCTION PROJECT CULTURE EMERGE?

Meudell and Gadd (1994), who argue on culture in general management, depict that ‘history’ is the key influence which affects culture where time allows for relationships to be built up, there is time for top management to exercise influence and for values to be created and transferred. Thereby, cultures are clearly visible with organisations due to their life span, but somewhat unlikely with a project. Further, this is an issue which seems valid for construction projects with fixed life spans.

Ankrah *et al.* (2009) identify that the client and contractor as dominant participants influencing project culture. Even, Zuo (2008) highlights the influence of client in creating the culture within the project team. Mainly the client’s involvement is essential in relationship contracting to allocate resources throughout the project process. Further, it is highlighted that the capacity and the level of resources of the client (such as

funds) directly impact the level of influence the client can exert on the project members. Moreover, Zuo (2008) depicts that this influence would not be visible in traditional procurement methods because in such procurement arrangements client will engage in the primary consultation only later the architect or the project manager will manage the project. However, Ankrah *et al.* (2009) do not indicate project manager as an influencing character for project culture in construction industry in United Kingdom. Nevertheless, Zuo (2008) identified that project manager has to take the responsibility in creating the culture within the project team. Further, Marrewijk (2007) elaborates in detail the two dominant cultural episodes in the Environ Mega project in Otherlands, due to change of the project manager. Therefore, it is a real time example for the implementation of strong project culture by a project manager. This supports the argument put forward by Schein (1983) that leader contributes to the creation of culture of a group by force or by his or her personality, however, According to his argument, this is not going to be a reality until group has overcome various crises of growth and survival, and has worked out solutions for coping with its external problems of adaptation and its internal problems of creating a workable set of relationship rules.

Going in line with the aforesaid argument, Schein (1984) depicts that patterns of basic assumptions of organisational culture are realised through the attempt of the group of people in coping with the problems of internal integration and external adaptation. Therefore, projects holding lot of similar characteristics to organisations, it could be argued that the project culture is also emerged in the attempt to survive from the said internal integration (those that deal with the group's ability to function as a group) and external adaptation problems (those that deal with the group's basic survival). These problems of internal integration include handling issues of; 'strategy', 'goals', 'means of accomplishing goals', 'measuring performance' and 'corrections' while problems of internal integration include problems related to 'language', 'boundaries', 'power and status', 'intimacy', 'rewards and punishments' and 'ideology'.

If one wants to identify the elements of a given culture, one can go down the list of issues and ask how the group views itself in relation to each of them: what does it seem to be its core mission, its goals, the way to accomplish those goals, the measurement systems and procedures it uses, the way it remedies actions, its particular jargon and meaning system, the authority system, peer system, reward system, and ideology. When this is done, one will find that there is in most cultures a deeper level of assumptions which ties together the various solutions to the various problems, and this deeper level deals with more ultimate questions (Schein, 1983). Research work of Ankrah *et al.* (2009) on factors affecting project culture included lot of similar factors as to these said problems. For example; in problems of external adaptation and survival, 'goals' could include the factors such as number of variations, level of importance of the cost and health and safety while 'means of accomplishing goals' could include factors such as level of subcontracting. In problems of internal integration, 'boundaries' could be tallying the factor of participants involved and 'power and status' could be tallying the factor of level of influence.

Further, Zuo (2008) mentions that a strong culture could be created through effective communication between parties mainly through project meetings hold face-to-face. Even, Song (2008) depicts the importance of information and communication technology in creating a good team culture. In addition, Meudell and Gadd (1994), researching on the hospitality sector projects argue that a strong culture could be created in projects through proper recruitment and training. This is a further challenge considering that construction project teams are formed mainly based on technical capabilities and contractual relationships. Hence, next section discusses whether all the existing construction project culture models is able to answer all the questions being raised throughout this paper.

5. DO EXISTING CONSTRUCTION PROJECT CULTURE MODELS SERVE THE PURPOSE?

Zuo (2008) has carried out research studies on project culture in Australian and Chinese construction industries combining some popular organisational culture models (e.g. Cameron and Quinn, 1999; Hofstede, 1990 etc.) to suit construction project context. According to his proposed project culture model (refer Figure 2), project culture consists of five dimensions as; Integrative, Cooperative, Goal oriented, Flexible and People-oriented. In this model Zuo (2008) depicts the structure of the project culture or some practise dimensions he proposes and not the content. For example, according to Zuo (2008), project culture is 'flexible' and easy to change. The question arises is why practising a flexible atmosphere. It can be because the nature of human nature to be assumed as good so the flexibility is allowed which could provide

a better clarification according to the value orientation theory of Kluckhohn and Strodtbeck (1961 cited Hills, 2002). Also, the project culture has the feature of being 'corporative' which raises the question 'why being corporative?'. One reason behind this could be because the project team has the assumption that best way the individuals within the project team should relate with others to be 'corporative'. It seems the cultural essence or which is called underline assumptions are not captured by the Zuo (2008)'s work. The better understanding would be to explain that the project team members assume that human nature is good and the best way to relating to other people is considering everybody as equal rather than saying it has the feature of corporation and flexibility. This is because, for example, if a change is to be introduced to the project culture and if it to be managed the most important is what are the underlying assumptions of people not mere its feature. When the change is introduced, the superiors are aware that going against the underlying assumptions would bring lot of resistance to the change.

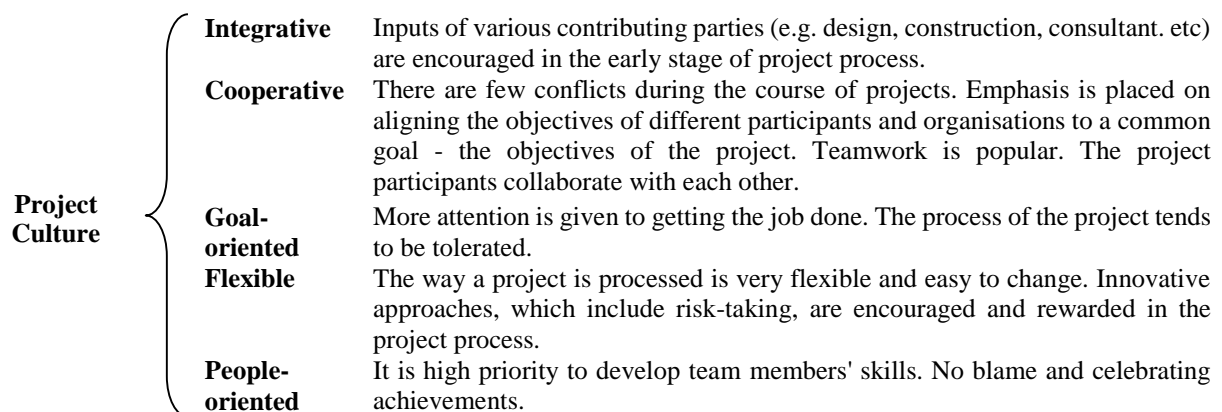


Figure 2: Proposed Project Culture Model
Source: Zuo (2008, p.274)

In addition, this project culture model has been developed for relationship contracting projects only. As described by Zuo (2008), relationship contracting or collaboration contracts are to achieve a common project objective which results in win-win situations for client and all other parties involved in the project including major features as all the parties sharing the risk and everyone being responsible for the success or failure of the project. Moreover, they explain that project culture tends to be different in different procurement methods. However, it is the traditional procurement method (where design and construction is carried out in two separate phases of the project) which is the most popular procurement method adopted in most of the construction industries (Love, 2002; Skitmore and Love, 1995). Therefore, whether the proposed project culture model is a fair representation of project culture is questionable.

Use of Competing Value Framework (CVF) developed by Cameron and Quinn (1999) to understand cultural orientation of thirteen Australian construction projects by Thomas *et al.* (2001) has been criticised by several other researchers. As argued by Zuo and Zillante (2005), general management derived organisational culture models such as CVF, have little consideration for the specific characteristics of construction projects. For example, the integration between the functional departments of one organisation, which is stressed in numerous organisational cultural models, should be modified to suit construction projects with the integration of the different functions (services) in construction projects.

Having identified specific research on construction project culture with their limitations, the next section discusses the conceptual framework developed for construction project culture for empirical study as the next of this study.

6. CONCEPTUAL FRAMEWORK FOR CONSTRUCTION PROJECT CULTURE

The answers to the three broad questions mentioned in Section 1 (i.e. 1) What cultural manifestations in deed represent construction project culture?, 2) How is the construction project culture organised? and 3) How does construction project culture emerge?) identified through a comprehensive literature review are mapped together using a conceptual framework for construction project culture. The conceptual framework

is presented in Figure 3. From all the cultural manifestations discussed, it is the underlying assumptions that provide the real essence of culture (refer Section 2). Therefore, underlying assumptions of the construction project team members have been identified as the cultural manifestation for project culture in the conceptual framework. Thus, the triangle in the middle of the conceptual framework shows the boundary of construction project culture, which includes the three perspectives of underlying assumptions identified through literature review as the three main concepts, i.e. integrated underlying assumptions among all team members, differentiated underlying assumptions of sub-cultural groups and fragmented underlying assumptions among team members.

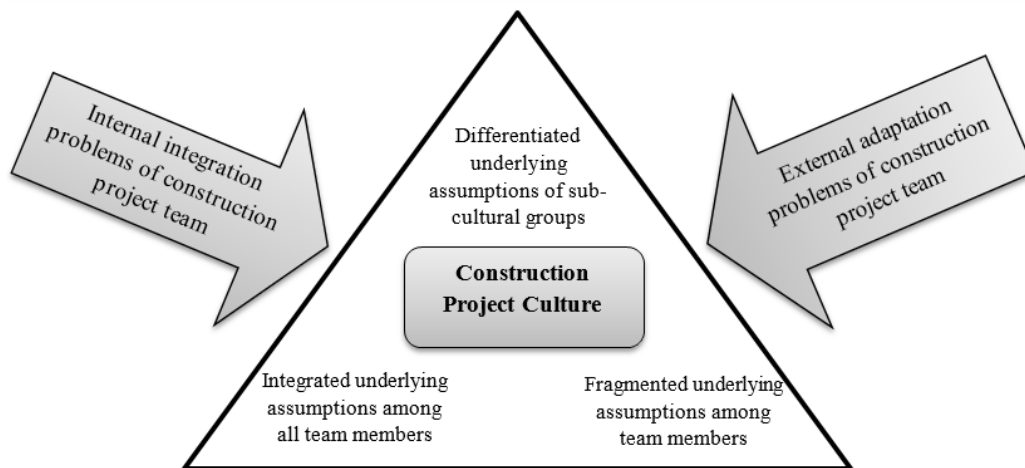


Figure 3: Conceptual Framework for Construction Project Culture

Shared view of culture has been identified as only one perspective of culture and presence of all three perspectives is expected in the context of construction project culture. The differentiated perspective represents the availability of sub-cultural groups within the construction project team. Sub-culture groups are to be identified as; 'executive', 'engineering' and 'operator' as described by Schein (1996) or as; 'organisational', 'professional', 'operational' and 'individualistic' as described by Kumaraswamy *et al.* (2002 cited Ankrah *et al.*, 2009) depending on the decision whether professional sub-culture is the dominant sub-culture in a given construction project context.

The two arrows pointed toward the triangle indicate the internal adoption problems and external integration problems of the construction project team, which give rise to the underlying assumptions of the project culture. These problems could include many of the issues related to organisational cultural setting which give rise to organisational culture as identified by Schein (1983) (refer Section 4). This conceptual framework can be further strengthened with empirical data by applying it in a selected context. The next section draws conclusions for the discussion.

7. CONCLUSIONS AND THE WAY FORWARD

This literature review aimed at understanding project culture in construction project by bringing in literal arguments for three broad questions. Initial problem was to identify what cultural manifestations give the true interpretation of project culture for which the underlying assumptions were realised to support the most. The next problem was to understand how the construction project culture is organised. The literal arguments brought in were that project culture could be existing in sub-cultural groups and should be further analysed with integrated perspective, differentiated perspective and fragmented perspective to get an in-depth analysis since all these orientations could be existing within the project team. The final question raised was to understand how the project culture emerges. The internal integration problems and external adaptation problems depicted by Schein (1984) related to organisational culture are seem to be affecting the emergence of project culture as well. Hence, mapping all these ideas and arguments, a literal definition for project culture could be derived as follows:

“Construction project culture is the pattern of meanings that link the underlying assumptions of the project team members, some in harmony among all team members, some in conflict among sub-groups within the project and some in paradox for internal integration and external adoption of the project team.”

A conceptual framework developed at the end of the literature review will be for better understanding of construction project culture (refer Figure 3). Further research proposed related this work could be developing methodological frameworks to gather empirical findings to test the validity of the stated definition and the conceptual framework for construction project culture.

8. REFERENCES

- Ankrah, N. A., and Langford, D. A., 2005. Architects and contractors: A comparative study of organisational cultures. *Construction Management and Economics*, 23(5), 595-607.
- Ankrah, N. A., Proverbs, D., and Debrah, Y., 2009. Factors influencing the culture of a construction project organisation. *Engineering, Construction and Architectural Management*, 16(1), 26-47.
- Cameron, K. S., and Quinn, R. E., 1999, *Diagnosing and changing organisational culture: Based on the competing values framework*, Prentice Hall.
- Fellows R., Grisham, T., and Tjihuis, W., 2007. Enabling project team culture. In: M. Sexton, K. Kähkönen and S. Lu (Eds.), *CIB priority theme - revaluing construction: A W065 'organisation and management of construction' perspective, CIB report: Publication 313*, Rotterdam: CIB General Secretariat, 27-44.
- Fellows, R., and Liu, A., 2013. Use and misuse of the concept of culture. *Construction Management and Economics*, 31(5), 401-422.
- Harris, L.C. and Ogbonna, E., 1998. A three-perspective approach to understanding culture in retail organisations. *Personnel Review*, 27(2), 104 – 123.
- Hatch, M. J., 1993. The dynamics of organisational culture. *The Academy of Management Review*, 18(4), 657-693.
- Hills, M. D., 2002. Kluckhohn and Strodtbeck's values orientation theory [online]. *Online Readings in Psychology and Culture*, 4(4). Available from: <http://dx.doi.org/10.9707/2307-0919.1040> [Accessed 12 March 2014]
- Hofstede, G., 1980. *Culture's consequences: International differences in work-related values*. California: Sage Publications.
- Hofstede, G., 1990. Dimensionalising cultures: the Hofstede model in context. *Online Readings in Psychology and Culture*, 2(1), 1-26.
- Hofstede, G., 1991. *Cultures and organisations: Software of the mind*. London: McGraw-Hill.
- Hofstede, G., 2011. Dimensionalising cultures: The Hofstede model in context [online]. *Online Readings in Psychology and Culture*, 2(1). Available from: <http://scholarworks.gvsu.edu/cgi/viewcontent.cgi?article=1014&context=orpc> [Accessed 12 March 2014]
- Kappos, A., and Rivard, S., 2007. Review: Cultural interpretations from multiple perspectives: A three-perspective theory of culture, information systems and the development and use processes. *HEC Montréal*. 1-57.
- Kluckhohn, F. R. and Strodtbeck, F. L., 1961. Variations in value orientations. *Evanston, IL: Row, Peterson*.
- Love, P. E. D., 2002. Influence of project type and procurement method on rework costs in building construction projects. *Journal of Construction Engineering and Management*, 128(1).
- Marrewijk, A., 2007. Managing project culture: The case of Environ mega project. *International Journal of Project Management*, 25, 290-299.
- Marrewijk, A. V., 2006. *Organising mega-projects: Understanding their cultural practices* [online]. Available from: <https://research.mbs.ac.uk/.../0/.../Paper%20MegaprojectsLondon.docx> [Accessed 12 March 2014]
- Martin, J., 2002. *Organisational Culture: Mapping the terrain*. Sage, Newbury Park, CA.
- Martin, J., 2004. *Organisational culture, Research Paper Series*. Stanford, Research Paper No 1847.
- Maznevski, M. L., Martha, L., DiStefano, J. J., Gomez, C.B., Noorderhaven, N. G. and Wu, P., 2002. *International Journal of Cross Cultural Management*, 2(3), 275-295.

- Meudell, K., and Gadd, K., 1994. Culture and climate in short life organisations: Sunny spells or thunderstorms?. *International Journal of Contemporary Hospitality Management*, 6(5), 27-32.
- Ofori, G., and Toor, S., 2009 Research on cross-cultural leadership and management in construction: A review and directions for future research. *Construction Management and Economics*, 27(2), 119-133.
- Parashar, S., Dhar, S. and Dhar, U., 2004. Perception of values: a study of future. *Professionals Journal of Human Values*, 10(2), 143-152.
- Rameezdeen, R., and Gunarathna, N., 2003. Organisational culture in construction: An employee perspective. *The Australian Journal of Construction Economics and Building*, 3(1).
- Rokeach, M. (1979) *Understanding human values: Individual and societal*. New York: The Free Press.
- Schein, E. H., 1983. The role of the founder in creating the organisational culture. *Organisational Dynamics*, 13-28.
- Schein, E. H., 1984. Coming to a new awareness of organisational culture. *Sloan Management Review*, 25 (2), 3-16.
- Schein, E. H., 1996. Three cultures of management: the key to organisational learning. *Sloan Management Review*, 38 (1), 9-20.
- Schein, E. H., 2004. *Organisational culture and leadership*. California: Jossey-Bass.
- Schwartz, S. H., 1994. Are there universal aspects in the structure and contents of human values?. *Journal of Social Issues*, 50(4), 19-45.
- Skitmore, M. R., and Love, P. E. D., 1995. Construction project delivery systems: An analysis of selection criteria weighting [online]. In: *Proceedings ICEC Symposium "Construction Economics - the essential management tool"*, 295-310. Available from: <http://eprints.qut.edu.au/4525/1/4525.pdf> [Accessed 12 March 2014]
- Song, L., 2008. The innovative construction of team culture in hypothesised organisations. *Asian Social Science*, 4(6), 39-44.
- Thomas, R., Marossezeky, M., Karim, K., Davis, S., and McGeorge, D., 2002. The importance of project culture in achieving quality outcomes in construction [online]. In *Proceedings IGLC-10*, 1-13. Available from: <http://www6.ufrgs.br/norie/iglc10/papers/98-ThomasEtAl.pdf> [Accessed 12 March 2014]
- Yeganeh, H., 2009. The applicability of widely employed frameworks in cross-cultural management research. *Journal of Academic Research in Economics*, 1-24.
- Zuo, J., 2008. Project culture in the Australian construction industry: lessons for China (Doctoral dissertation) [online]. Available from: <http://trove.nla.gov.au/work/3957852?selectedversion=NBD43432600> [Accessed 12 March 2014]
- Zuo, J., and Zillante, G., 2005. Project culture within construction projects: a literature review [online]. In: *Proceedings IGLC-13*, 353-361. Available from: <http://search.informit.com.au/documentSummary;dn=58933596894863 9;res= IELENG> [Accessed 12 March 2014]
- Zuo, J., and Zillante, G., 2008. Construction project culture vs. national culture [online]. In *International Conference on Multi-National Construction Projects*, 1-9. Available from: <http://www.irb.fraunhofer.de/CIBlibrary/search-quick-result-list.jsp?AandidSuche=CIB+DC12142> [Accessed 12 March 2014]