

UNDERSTANDING PROJECT CULTURE IN CONSTRUCTION: A LITERATURE SYNTHESIS

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ABSTRACT

Construction industry being a project-based industry, understanding nature of project culture is of paramount importance. Culture at project level seems less researched; possibly due to understanding of project culture seems a tedious task since it is being shaped through different levels of cultures; national, industrial, organisational, professional and many other factors situational to a given project team. However, recent past shows some studies attempting to elaborate project culture in construction context. Some researchers tend to identify construction project culture through theories of organisational culture. This paper attempts to understand nature of project culture in construction through these extant literatures and also reveals limitations of these studies. Further, the study identifies some unique features related to a construction project, which challenges identifying a unique culture at project level in construction. These main unique features include: the fixed duration of the project; adoption of traditional method of procurement; entrance of key members to the project from time to time and effective communication. Further research will aim to explore this aspect fully in the light of these challenges.

Keywords: Project Culture, Construction, Project Team.

1. INTRODUCTION

Construction project culture is a less researched area and, therefore, a proper definition for construction project culture has not much discussed within extant literature. An early definition given by Newcombe (1997 cited Kwan and Ofori, 2001) refers project culture as the set of shared values, beliefs and assumptions of stakeholders involved in a project. Zuo and Zillante (2005, p.357) further explains 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.”

Among several attempts to explain project culture, Kumaraswamy *et al.* (2001, 2002 cited Ankrah *et al.*, 2009) and Zuo (2008) offer some models to identify components of project culture while Ankrah *et al.* (2009) has identified some factors affecting the project culture. However, most of these studies are divergent and have their own limitations. For example; the model developed by Kumaraswamy *et al.* (2001, 2002 cited Zuo and Zillante, 2005) is very complex to understand which incorporate several components at different levels of culture. Zuo's (2008) model for construction project culture is limited to relationship contracting such as partnering and alliancing projects which are still emerging procurement methods in many countries. This paper aims to study these studies in-depth and explore possibilities of converging diverse perspectives to get a clear understanding of construction project culture. Further, this is a part of a large study intended to carry out on role of project culture on construction project performance.

This paper is structured in six sections, initially the importance of culture in construction is explained and then, the complexity of culture in construction is discussed. Next, an insight into the project culture through the study of impact of different sub-cultures is given following an explanation on project culture through organisation cultural models. Thereafter, the challenges in identifying a unique construction project culture are explained and finally, the conclusions have been drawn.

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2. IMPORTANCE OF CULTURE IN CONSTRUCTION

The construction industry is having its run through different human interactions along the design and construction phases of a construction product. Hence, behaviour of each and every individual within a project is significant to its success. ‘Culture’ is believed to create these differences in behaviour of the people involved. Cultural differences could create misunderstanding between people and between businesses creating risk for conflicts and dissatisfaction between construction project participants (Tijhuis, 2011). Ankrah and Langford (2005) also believe that conflicts related to human interaction could occur with cultural differences and negatively affect achieving project objectives.

Kendra and Taplin (2004), who studied on project success in IT organisations, highlighted that it is a must to develop a project management culture based on shared cultural values of the organisation’s members. Accordingly, it could be argued that project culture has a role to play in success of project management. Quality management being one of the nine areas of project management, Thomas *et al.* (2002) highlight the importance of project culture in achieving quality outcomes in construction. In that, they elaborate that clan type of a culture within the project team can achieve better quality outcomes on construction projects provided that the project manager acts as a mentor by placing a premium on teamwork, participation and consensus. Project culture as explained above is not only important to achieve project success and quality outcomes, but also for knowledge management and innovation. For example, Egbu (2001) states that a favourable project culture and environment are vital if tacit knowledge are to be exploited for the purpose of innovation. Ngowi (1997 cited Pheng and Yuquan, 2002) depicts that a construction project team with members from different cultural backgrounds are more innovative than team members from similar cultural backgrounds. He highlights the importance of understanding the cultural background of project team members in project management to create a conducive environment for innovation.

Hence, diverse culture could in one hand lead to innovation and learning, while on the other hand could lead to conflicts as argued before. This will become more complex with multi-national construction projects where team members not only come from different organisations and backgrounds, but also from different countries. Therefore, it could be argued that project culture has an important role in project management and managing a project culture is important in several ways such as to manage conflicts, for quality outcomes and to promote innovation. However, understanding culture in construction is a complex task due to several reasons as discussed next.

3. COMPLEXITY OF CULTURE IN CONSTRUCTION

Both culture and construction are considered as complex. Culture is considered to be governing complex human behaviours while construction involves many and complex human activities throughout its design, production, occupation and disposal processes (Fellow and Liu, 2010). As described by Tijhuis (2011), individual human beings have collective values and behaviours creating a culture which can be recognised by analysing the social groups to whom they belong. Further, related to construction industry, he elaborates that such a social group may be considered as an industry segment, companies within the industry segment, geographical region of an industry segment or individuals within it. Analysing each of it unveil the professional culture, industry/business culture, national or regional culture and family culture respectively. These different levels of culture create a complex arena in which cultural issues are emerging and influencing behavioural interactions within construction.

Fellow *et al.* (2007) further describe that projects in construction are seen as temporary multiple organisations where members from different organisations are brought together. Hence, the projects they involve present mixes of cultures of constituent organisations and nations as well. These cultures are of complex nature due to the combination of underpinning values, manifestations of behaviour, and language. Therefore, the complexity seems to have created through the existence of different levels of culture on a construction project, which is discussed in detail next.

4. UNDERSTANDING PROJECT CULTURE THROUGH ITS SUB-CULTURES

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. This shows the impact of national culture on project culture. A similar argument has been brought forward by Evaristo and Scudder (2000) that the project culture may borrow national cultural characteristics of its team members and of its different locations. Further, Zuo and Zillante (2008), who have done a preliminary study on national culture and project culture argue that there is a clear possible link between national and project cultures while a strong project culture would override the national culture of project team members.

When a construction project team is formed with different participants from different organisations, mainly; consultants, contractors and other stakeholders, many difficulties seem to arise due to the conflicts of different business objectives and lack of sensitivity and tolerance of difference between participants which highlight the importance of understanding of organisational culture for successful project management (Fellow *et al.*, 2007). Further, Rameezdeen and Gunarathna (2003) elaborate the cultural differences between contracting and consultant organisations in Sri Lanka. According to them, consultants 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. Further 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. 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.



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

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. Some researchers have tried to understand project culture through organisational culture models as discussed in detail in the next section.

5. UNDERSTANDING PROJECT CULTURE THROUGH ORGANISATION CULTURAL MODELS

Thomas *et al.* (2002) tried to understand cultural orientation of thirteen Australian construction projects using one of the most popular organisation culture models; Competing Value Framework (CVF) developed by Cameron and Quinn (1999). According to Oney-Yazici *et al.* (2007), the CVF is based on two major dimensions. The first dimension emphasises the organisational focus (internal versus external), whereas the second one distinguishes between the stability and control and the flexibility and discretion. These two dimensions form four quadrants (refer Figure 2), each representing a major type of organisational culture; ‘clan’, ‘adhocracy’, ‘market’ and ‘hierarchy’ which are respectively support-oriented, innovation-oriented, rules-oriented and goals-oriented.

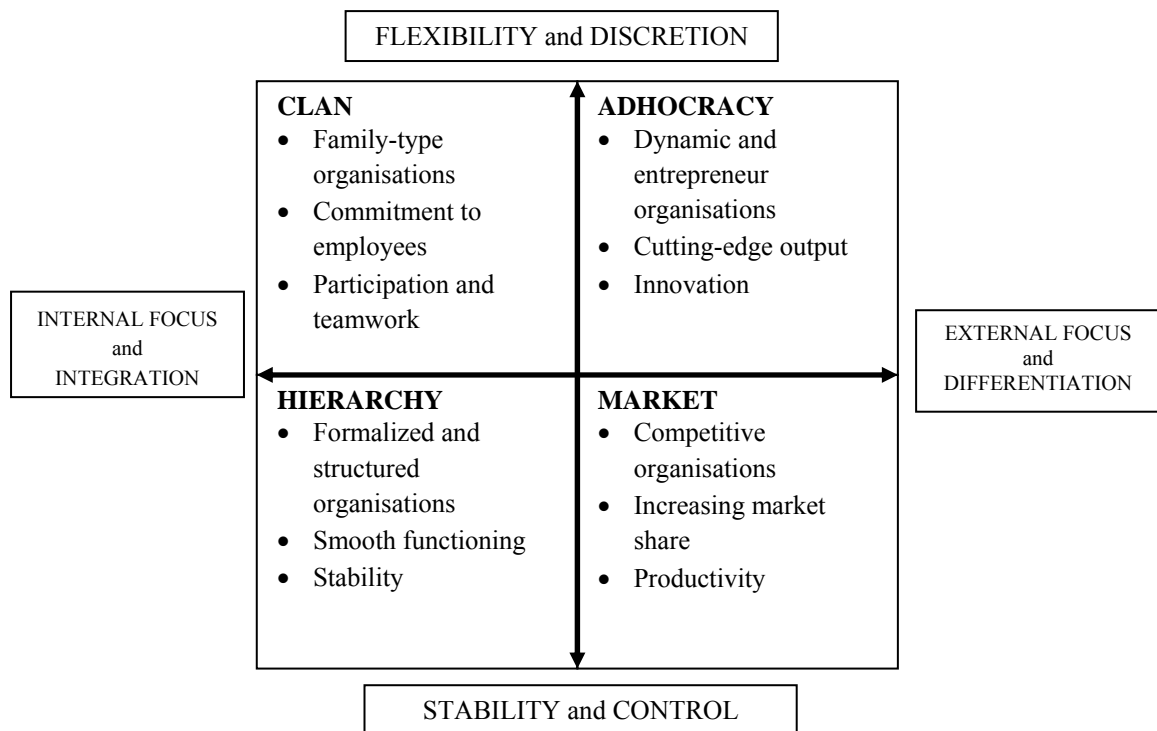


Figure 2: The Competing Values Framework
(Source: Oney-Yazici *et al.*, 2007, p.522, Adopted From: Cameron and Quinn, 1999)

Using this framework, Thomas *et al.* (2002) found that projects achieving below average performance showed a strong orientation towards ‘market’ forms of culture, which are ironically, results orientated. The management styles (implicitly) inherent within this culture are focused on short-term goal attainment and project managers are ‘hard-driving’ and competitive. This type of culture focuses on the individual and his/her ability to produce. These forms are not favourable to developing co-operative, open, team environments, but rather, adversarial, conflict-ridden projects concerned with individual, or organisational, self-preservation.

Conversely, projects that produced above average results exhibited considerably weaker market characteristics while possessing strong traits associated with Clan types of organisation. These are organisations that place a premium on team cohesion, consensus and morale and are led by managers with a mentor or facilitator style where they were people-orientated. They recognised and were open and listening to the needs of the individual and the team as a whole. It logically follows that this approach to managing projects is most likely to take care of an environment conducive of proactive, committed, and open team working (Thomas *et al.*, 2002).

However, use of CVF in analysing project culture, which has originally been developed to assess the organisational culture has been criticised by several other researchers. As argued by Zuo and Zillante (2005), general management derived organisational culture models such as Competing Values Framework, 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.

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; Hofsted *et al.*, 1990 etc.) to suit construction project context. According to his proposed project culture model (refer Figure 3), project culture consists of five dimensions as; Integrative, Cooperative, Goal oriented, Flexible and People-oriented.

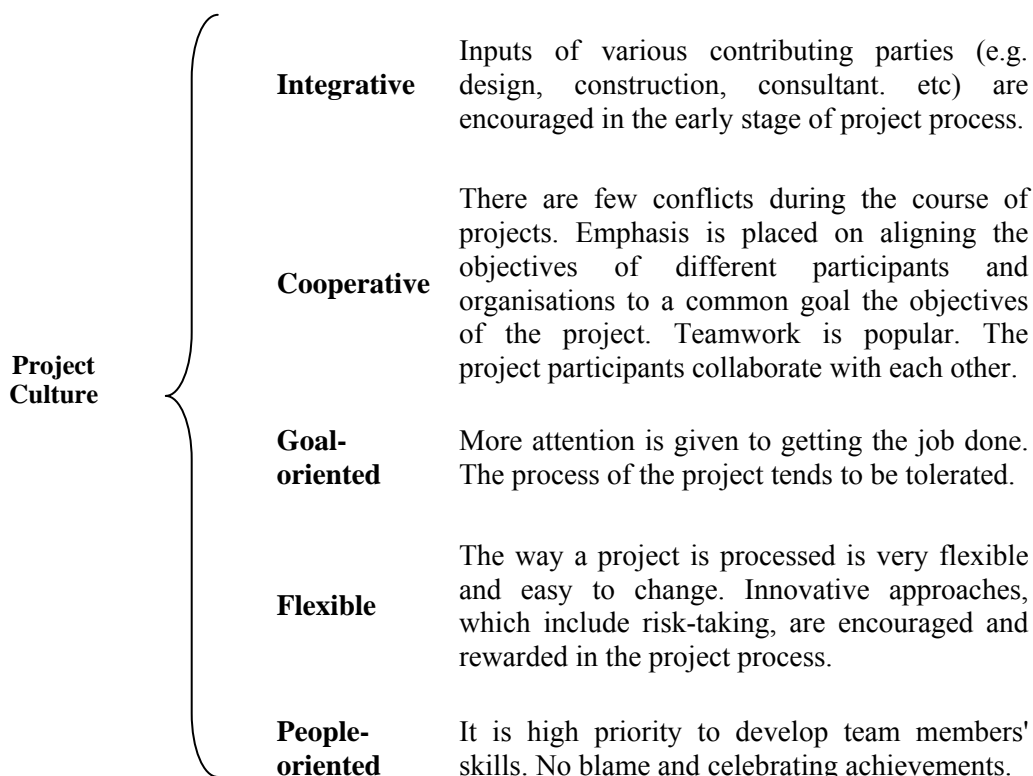


Figure 3: Proposed Project Culture Model (Source: Zuo, 2008, p.274)

However, this 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.

Having identified specific research on construction project culture with their limitations, the next section looks into to challenges of understanding a unique project culture.

6. CHALLENGES IN IDENTIFYING A UNIQUE CONSTRUCTION PROJECT CULTURE

Numerous attempts to identify culture in construction project context are apparent in construction research arena. These include some explanations for construction project culture through the effect of different subcultures (refer Section 4) while some studies identify project culture with the aid of existing organisation cultural models (refer Section 5). However, these elaborations have their own deficiencies and assumptions. On the other hand, unique features of the construction project team setting challenges in identifying a unique project culture in construction context. This section attempts to discuss these challenges in detail.

The differences between a project and an organisation make it difficult to relate organisational cultural theories to project to understand the culture of the project. Zuo (2008) depicts some differences between a project and an organisation related to time span, uniqueness, stakeholders, team and membership hierarchy.

Among these differences, time-span seems to be affecting most to the creation of a unique culture within the project. As depicted by Tyron (2003), a general project team could take three forms; ‘Continuing Efforts’, ‘Repeating Efforts’ and ‘Single-Time Efforts’ which seems common to the construction industry as well. Real organisations are with continuing efforts where strong cultures are visible due to the nature of life time which is perpetuity. Further, Palmer (2002) describes the effectiveness of adopting a project culture in Kimberly-Clark; one of the world’s largest manufacturers of packaged goods which are adopting ‘Continuing Effort’ type of project teams. However, most of the projects in construction take the look of a ‘Single-Time Efforts’ type of projects with a fixed time span. Further, Turner and Muller (2003, p.7) provides a definition for a project as follows:

“A project is a temporary organisation to which resources are assigned to undertake a unique, novel and transient endeavour managing the inherent uncertainty and need for integration in order to deliver beneficial objectives of change.”

Here, they also identify a construction project as a temporary organisation highlighting the characteristic of a fixed time span. 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. However, Zuo and Zillante (2005), in their proposed project culture conceptual framework suggest that long-term relationships with project participants is a key component of project culture in construction where there could be continuous relationships between project participants and further, clients are willing to use the same project team in their future projects as well. This challenges the common procurement methods such as separate contracts used in construction industry.

Entrance of key members from time to time is another challenge in identifying a unique construction project culture. When a new member enters to the project team, the team development process is reversed back to the earlier stages (refer Senaratne and Hapuarachchi, 2009) which is a barrier to the development of a positive culture. Further, Zuo (2008) argues that creation of a culture is deterred by key members entering the project team by time to time. Within a construction project with traditional procurement arrangement, due to its nature of the design and construction phase being separated, entrance of project team members from time to time is unavoidable. The contractor, who becomes one of the major stakeholders to the construction project team, enters to the project only after the design phase of a

traditional procurement arrangement and the sub-contractors at their particular trade. Therefore, creation of a culture within such a project team is highly questionable.

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 Megaproject 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. Even as previously highlighted by Zuo and Zillante (2008), a strong culture could override the national culture.

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.

The next section offers the conclusions of these literature findings.

7. CONCLUSIONS AND WAY FORWARD

This review of literature aimed to understand a culture at project level in construction through the existing literature. According to the prevailing literature, it is Kumaraswamy *et al.* (2001, 2002 cited Ankrah *et al.*, 2009) who made the initial attempt to develop a model to define the culture at project level related to construction industry. However, this model is heavily criticised by other researches for being complex and difficult in adopting. In addition, there are some other researchers who have carried out different studies related to culture at project level with certain limitations such as ignoring construction project as a temporary organisation and sticking to rare procurement approaches. This is common in the work done by Ankrah *et al.* (2005, 2009); Thomas *et al.* (2002); and, Zuo (2008). Thomas *et al.* (2002) directly used the Competing Values Framework in evaluating the quality outcomes in construction project context with the underpinning assumption that construction projects possess the features of an organisation. However, Ankrah *et al.* (2005, 2009) and Zuo (2008) have tried to incorporate some of the unique features of the construction project teams during their studies. Zuo (2008) has made a fair attempt to bring forward a model for culture. However, it is limited to procurement approaches like relationship contracting which takes the nature of partnering and alliancing practices while ignoring common methods such as the traditional (separated) procurement which is more popular in construction industries in most of the countries.

It is evident through literature that there are some specific characteristics pertaining to construction projects which have been disregarded in defining the project culture by above researchers. These features of the construction projects challenge the worth of identifying a culture at construction project level. These features include: the fixed time span of a construction project; traditional method of procurement being the most popular within the industry with minimum involvement of the client; entrance of key members to the project from time to time; and, lack of appropriate recruitment and training initiatives. These features within the construction project challenge the existence of a unique culture within the project level.

However, as discussed in Section 2, it is important for construction project managers to understand the culture of their project team to improve project team performance. Hence, this study calls for more

research into this aspect which considers overcoming the challenges identified due to construction project features. This will be the focus of the future research arising from this literature review.

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