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TOWARDS A QUALITY CULTURE IN MALAYSIAN CONSTRUCTION INDUSTRY

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INTRODUCTION

The construction industry is being viewed as one with poor quality emphasis compared to other sectors like the manufacturing and service sectors (Kubal 1994, Kanji & Wong 1998, Wong & Fung 1999). Many criticisms have been directed to the construction industry for generally shoddy workmanship. It not only the final product that is subject to criticisms but the processes, the peoples, the materials etc are under tremendous pressure for better quality in construction. This is mainly the result of the industry's failure to achieve the expected performance level in delivering its finished product and its customer service. The accelerated change in nearly every aspect of the economy, driven by technological developments in the manufacturing and service industries, has fuelled several paradigm shifts in business management. However, construction is singled out as one that is still dominated by attitudes, technologies, processes, and a culture that are at least half a century old (Dulaimi *et al*. 2001).

Several studies and reports recognise that problems surrounding poor construction quality constitute a major issue requiring rapid and positive improvement (BRE 1982, BEDC 1987, Burati & Farrington 1987, Griffith 1990). Aspects such as inadequate information, poor

communications, poor care in workmanship, and lack of site supervision (BRE 1982, Building EDC 1987) will remain as a continuing problem until the cultural patterns and the reasons behind them are understood, appreciated and taken into account (Abdel-Razek 1998)

Total quality management (TQM) is increasingly being adopted by construction companies as an initiative to solve quality problems in the construction industry and to meet the needs of the customer continuously (Kanji & Wong 1998) TQM has the potential to improve business results and competitiveness, greater customer orientation and satisfaction, worker involvement and fulfilment, team working and better management of workers within companies. Similar benefit may accrue to the construction industry and those it serves so long as it can break the vicious circle of mistrust, conflict and waste – the culture of confrontation – and replace it with a culture of quality (Seymour & Fellows 1999). However, construction firms have been continually struggling with its implementation (Haupt & Whiteman 2004). The implementation of a TQM philosophy within the organization requires a cultural change (Sommerville *et al.* 1999) and its being recognised as an important aspect of total quality development (Adebanjo & Kohoe 1998). However, the issue surrounding quality culture and their development has not been comprehensively studied (Evans & Dean 2003, Gallear & Ghobadian 2004, Detert *et al.* 2000). Hence, a cultural and behavioral shift in the mind-set of all participants in the construction process (Kanji & Wong 1998, Love & Heng 2000) especially top or senior management is necessary if the construction industry is to improve its performance (Haupt & Whiteman 2004).

CHARACTERISTICS OF THE CONSTRUCTION INDUSTRY

The construction industry has characteristics that separate it from all other industries. These characteristics which impact significantly upon its cultural framework are: the physical nature of the product; the product is normally manufactured on the client's premises; many projects are one-off designs and lack available prototype models; the arrangement, where design has normally been separate from construction; the organization of the construction process; and the methods used for price determination (Harvey and Ashworth 1993).

According to Kanji and Wong (1998), the construction industry has numerous problems because of its complicated nature of operation. This industry is comprised of a multitude of occupations, professions and organizations and they are involved in the different phases of a construction project. The client, consultants, contractor and sub-contractors of a construction project all have a role to play in delivering a quality project. Failure of any of the parties will seriously affect the quality of the final project.

Rowlinson and Walker (1995) point out that the construction industry is also characterized by its non-standardization. Production processes are to some extent different from one another. Hence, no universal standard or specification can be applied to the product, which leads to difficulties in quality assurance. There are excessive changes to the details of the design of a project are typical throughout the construction process. Quality is often at risk because of the excessive changes.

The industry also has become increasingly reliant on burdensome specifications, which seldom says exactly what the owner intends them to say. This has led the owners to shift more of the risks to the contractors. The net outcome is that the construction industry has been bogged down with paperwork, defensive posturing, and generally tends to have a hostile attitude towards the other participants. Hence, the Construction Industry Board (reported in Barthorpe et al. 1999) advocate that, it is imperative to convert the current vicious circle of

poor image, poor performance, poor delivery to a virtuous circle of improved delivery and better image, attracting the right people to continue the process. TQM can help to reverse this situation. Although, it is not a magic pill or panacea for all illnesses, it will, if properly implemented, help construction companies improve and will help all the parties come closer.

ISSUES AND PROBLEM OF QUALITY CULTURE

Studies have indicated that TQM is likely to fail 18-24 months into the endeavour irrespective of the approach used (Smith *et al.* 1993). One of the common reasons for the failure of TQM is the cultural position of the company. If the TQM effort is inconsistent with the organisational culture, the effort will be undermined (Evans & Dean 2003). ECI (1996) highlight that the current construction culture is perceived by some as suffering from entrenched attitudes, poor communication, lack of trust and generally adversarial relationships at all levels. Many of the characteristics are rooted in management style and practices which have evolved over the years. Unless the attitudes and behaviours associated with these practices change, there will be no significant progress in improving the situation.

As reported by Kajewski and Weippert (2001), research indicates that one of the last available 'mechanisms' left for organisations to improve their competitive position within the construction industry is by considering its people (culture) along with its technology. In other words, if one wants to make construction industry organisations, groups and project teams more efficient and effective, then one must better understand the role that culture plays within them (Schein 1997). Unfortunately, this transformation of personalities (culture) and traditional processes is not easy (Michel 1998), characteristically hindered by the industry's unique and determined way of 'doing

things' the way it always has, and by its deeply embedded and resistive nature to change. The Egan Report on Rethinking Construction (Egan 1998) stresses the need for the industry to make substantial changes in its culture and structure, as a driver for improvements, inefficiency, quality and safety.

In Malaysia, the construction industry constitutes an important element of the economy. Although it accounts for only 2.9% of the GDP in 2004, the industry is critical to national wealth creation as it acts as a catalyst for, and has multiplier effect to the economy and also enables other industries namely manufacturing, professional services, financial services, education and others (CIDB 2007). Hence, the strived for quality is a major concern for the industry. The issue of quality has become significantly important especially when more Malaysian construction firms make their way overseas in search of new markets. However, the image of the construction industry has of late been somewhat tarnished as a result of a number of building and road failures, increasing rate of accidents occurring on construction site, project delayed, complaints on building defects and poor quality, and uncaring attitudes of contractors to environmental issues. These incidents have raised public questions with regard to quality, safety and environmental practices among those engaged in the construction sectors. These mean that there are remain serious weakness in the industry itself. Thus, it is important that the industry must remove any weakness in order to regain it reputation as industry that can produce quality products, enhance its ability and increase its contribution to economic growth (Leo 1994).

Although there are many fine example of quality in major completed project in the country, there are still in the construction industry that do not understand and accept the need to produce a quality work. The construction industry must recognised that companies that fail to adopt the quality approach will result in higher costs and lower productivity as a result of the needs to rework or to scrap defective products. In addition to this measurable cost, the loss of customer goodwill and reputation could well threaten the long term

survival of the company (Ahmad 1994). It is therefore important for the construction industry to recognise that the pursuit of better quality is vital to improve their competitiveness and business success. Hence, the achievement of quality should be a matter of concern to all players of the construction industry. Clients, consultants, contractors, manufacturers and suppliers must begin to put quality before optimising profits since quality management promise better benefits embracing better future business, greater satisfaction and improved economic return (Abdul Rahman 1994) . As such the implementation of total quality management (TQM) will be the appropriate starting point for those in the construction industry to stay competitive.

However, a culture issues must be addressed if TQM is to be successfully installed by the construction industry in Malaysia (Noor Fauziah 2002). Quality culture should be cultivated amongst all parties in the construction industry, particularly appreciation of quality by clients in the public and private sectors to promote a customer-driven seeding of quality culture (Kong 1995). Abdullah (1994) highlighted that the construction firms need to create a quality culture in their organisation – produce a quality work has to be the goals of the firm. In future, quality will determine quantity – firm with a good quality service has a better opportunity to secure project. The quality of work will effect the reputation and will influence the capability of the firm to get a project. Thus, the principles and practice of ISO 9001 offers a very important single initiative to the industry as a means of establishing and maintaining a much need quality culture (Leo 1994).

According to Noor Fauziah (2002), achieving a total quality culture is not simple. A company must undergo a transformation process in order to change from its traditional management approach to TQM. There are also many factors that influence the direction, the route and the means of getting towards a total quality culture. She also asserts that a generalisation about the adoption of total quality culture in construction industry in Malaysia can be summarised as still in its infancy stage or non existence because the concept of TQM and its

implementation is unclear and companies are not under pressure for total quality culture. Therefore, there is an urgent need to create awareness and greater emphasis on the development of quality culture in construction organisation.

CONCEPT OF QUALITY

Definitions of quality vary quite widely (Greene 1993, Cole 1999). Cameron and Sine (1999) lists seven common definitions of quality appearing in the literature as in Table 1.

Table 1 - Seven major definitions of quality.

Approach	Definifion	Example
Transcende nt	"Quality is neither mind nor matter, but a third entity independent of the two. Even though Quality cannot be defined, you know what it is" (Pirsig 1974).	Innate excellence Timeless beauty Universal appeal
Product-based	"Quality refers to the amounts of the unpriced attributes contained in each unit of the priced attribute" (Leffler 1982).	Durability Extra desired attributes
User-based	"Quality is fitness for use' (Juran 1974)." "Quality consists of the capacity to safisfy wants" (Edwards 1968).	Wanted features Satisfies customers
Production-based	"Quality means conformance to requirements" (Crosby 1979).	Fulfills expectations Meets needs Reliability Adherence to specifications
Value-	'Quality means best for certain	

based	conditions..... (a) the actual use and (b) the selling price" (Feigenbaum 1983).	Variation within tolerance limits
System-based	"[Quality is] a system of means to economically produce goods or services which satisfy customers' requirements" (Japanese Industrial Standards Committee Z8101 1981, 14).	Performance at on acceptable price Affordable excellence Value for the money spent
Cultural	"[Quality] means that the organization's culture is defined by and supports the constant attainment of customer satisfaction through an integrated system of tools, techniques, and training" (Sashkin and Kiser 1993),	Utilizing accepted quality procedures Integrated approach Quality processes Management philosophy Lifestyle Mind-set

The first five focus on quality as an attribute of a product or service, or on specific tools, techniques, or activities in an organization. The last two definitions focus on quality as the overall functioning of an organization or an ultimate outcome.

According to Hart (1994), quality has a three-fold meaning in construction: it means getting the job done on time; it means ensuring that the basic characteristics of the final project fall within the required

specifications; it means getting the job done within budget. A quality construction project has to comprise all these dimensions. Actually, quality in construction is directly connected with conformance to specifications and fitness for use. Levitt & Samelson (1993) asserts that the TQM mission in construction is to build a quality product - i.e. an error-free one - for the user by preventing errors in the construction process by integrating quality, productivity, and safety. A major emphasis is on doing work right the first time, thereby cutting the amount of rework required to create construction that meets the user's requirements.

Aggressive competition, both at the regional and international level has imposed higher quality levels in almost all business activities and sectors. To ensure their position in the emerging international market, construction firms are actively engaged in trying to achieve internationally accepted quality levels based on two major framework of TQM – the ISO 9001 family of quality standard, and quality award criteria. Studies indicate that TQM reached an integrated set of commonly accepted practices as a result of the wide acceptance of these two frameworks (Wiele 1998). They require company wide organisations to establish a well-structured and explicit system that identifies, documents, coordinates and maintain all the key quality related activities throughout all relevant company and site operations to ensure customer quality satisfaction and economical costs of quality (Arditi and Lee 2003).

Many construction companies in the US, Singapore, UK, and other European countries have been using TQM successfully for a number of years now and reaping rich rewards in improved client, consultant, and supplier relations, reduced “cost of quality”, on time and within budget project completions, and a well informed and highly motivated team of staff. Examples of companies adopting TQM to improve their performance are Morrison Construction Group (Sommerville 1994), Takenaka Corporation (Jido 1996) and Shui On Construction Co. (Fung and Wong 1995). Higher customer satisfaction, better project

quality and higher market share often come with the adoption of TQM by such companies (Wong & Fung 1999).

CONCEPT OF CULTURE

Culture is used to describe the collection of soft management and behavioral variables that form the psyche of the business organisation. Culture is important because it is a powerful, latent, and often unconscious set of forces that determine both our individual and collective behaviour, ways of perceiving, thought patterns, and values. It needs to be taken seriously to help anticipate consequences and make choices about their desirability (Schein 1999). To manage and influence culture, it is necessary to first define and then develop a conceptual model of what culture are (Railey and Clare-Brown 2001).

There is multitude of definitions of culture, each with its own slight variation depending on the focus of study, but most suggest culture is the pattern of arrangement, material or behaviour which has been adopted by a society (corporation, group, or team) as the accepted way of solving problems. As such, culture may be taken to include all the institutionalized ways and the implicit beliefs, norms and values and premises which underline and govern behaviour (Ahmed et al, 1999). It is a collective programming of the mind which distinguishes the members of one category of people from another (Hofstede 1980). Hence, the notion of culture is one of groups - macro and micro (generating `sub-cultures'). The differentiation of groups can result in managerial difficulties. Thus, the nature of an individual involves consideration of character and personality (both shaped by and shaping culture(s)) whilst culture concerns-collectivities (Seymour & Fellows 1999).

Generally, culture is acknowledged to be rooted in people's minds - their ideas, beliefs and values. People are believed to act in ways which they consider to be desirable but they are not free to act in ways

which they perceive to be most beneficial (Seymour & Fellows 1999). Constraints are imposed to yield a decision environment of bounded rationality (Simon 1960) through the particular situation and norms of behaviour - both explicit (employer's dictates, professional institution rules of conduct, law) and implicit (moral codes etc.).

Further, if management may be regarded as the human activity of making and implementing decisions concerning people; appreciation of culture is central to successful management, especially in determining appropriate changes towards the desired outcomes (Seymour & Fellows 1999). Hence, culture is a key concept in improvement. If the organisation is to change in a way that recognises the need to be able to produce superior levels of quality, every person involved in the process must alter their beliefs and attitudes that create the sense of what is, or is not accepted. The culture of construction that currently exists is one that needs remedy and long-term improvement (McCabe 2004). If the industry is to achieve its full potential, substantial changes in its culture are required (Construction Task Force 1998).

QUALITY CULTURE

Many quality practitioners including Gryna *et al.* (2007) and Evans and Dean (2003) have noted that in recent times, there has been an increasing recognition and acceptance of the importance of the culture of an organisation in sustaining any quality effort.The emphasis on culture in the corporate context reflects the holistic nature of organizational quality initiatives and incorporates the notion of transformation from existing commonly held assumptions, attitudes, behaviour, values and beliefs towards the development of an alternative paradigm (Berry 1997). This is why most of the literature claims that the basis for the success of TQM programmes lies in analysing the culture and orienting it towards these aims (Claver 2001).

Such a quality culture is described by Gryna et al. (2007) as the pattern of habits, beliefs and behaviour concerning quality. They stress that having a positive quality culture is an essential in achieving the quality goals of a company. Hence, quality culture is the main ingredient in a successful TQM program (Seraph and Sabistian 1993, Westbrook 1993). An organization with a 'quality culture' can be defined as one having ‘clear values and beliefs that foster total quality behaviour’ (Linkow 1989). Changing corporate culture or organizational culture is increasingly recognized as one of the primary conditions for successful implementation of total quality management (Hildebrandt *et al.* 1991). As a result, it has been suggested that those organisations attempting to implement or manage quality programs need to pay more attention to the development of the appropriate quality culture (Dellana and Hauser 1999).

QUALITY AND ORGANIZATIONAL CULTURE

A number of companies have found that they could not accomplish world-class quality by using traditional approaches to managing product and service quality. To enhance their competitive position, some companies have reappraised their traditional views of quality and have adopted a new organisation model what is known as the ‘total quality management’ in running their businesses. This new organisation model is described as an organisation, which give top priority to quality. Consequently, a culture of a TQM organisation has been described as a total quality culture (Noor Fauziah 2002).

The organizational culture needed to support TQM is one that values customers, improvement, and teamwork. Organizations where a focus on customers, continuous improvement, and teamwork are taken for granted have a good chance of succeeding at total quality. Most

organizations do not have such a culture prior to exposure to TQM some degree of cultural change is necessary. (Evans & Dean 2003)

The corporate quality culture is the organizational value system that encourages a quality-conscious work environment. It establishes and promotes quality and continuous improvement through values, traditions and procedures (Goetsch & Davis 2006). The existence of a strong quality culture should help a construction organisation to achieve client satisfaction as well as sustaining competitive advantage by delivering higher quality service and producing higher quality facilities (Yasamis *et al.* 2002)

CULTURE CHANGE

The successful implementation of a TQM philosophy within the construction organisation requires a culture change, which is recognised as an important aspect of total quality development. A change in culture and philosophy necessitates changes in peoples' behaviour. Changes in individuals are aligned to and affected by organizational change. If organizations are cultures then cultural change is organization change (Bate 1994). Culture in organizations has been described as patterns of shared assumptions (Schein 1991) socially acquired and shared knowledge that is embodied in organizational frames of reference (Martin 1992) or as common and clear understandings (Meyerson 1991). Hence, the implementation of TQM requires changes to the shared assumptions, frames of reference, and understandings that most organizations have developed through interaction with their environment (Ngowi 2000). In order to implement TQM approach, the construction organisation must understand the underlying culture base and set this against TQM model. This requires a cultural and behaviour shift in the construction organisation which a change in values, organizational structure, the way people work together, and the way people feel about participation and involvement (Hart & Schlesinger 1991). Therefore a solid

understanding of culture informs manager about how to change behaviour in order to embed TQM.

CONCEPTUAL FRAMEWORK FOR DEVELOPMENT OF QUALITY CULTURE

An emphasis on the technical requirement of quality is a common occurrence in the construction industry, particularly when construction firms first introduce quality management in their organisations (Low and Alfelor 2000). However, there is widely recognized that to be effective, organisation should address both the technical and non-technical (or cultural) issues. As suggested by Cameron (2001), organisations need to adopt a quality culture, not just a quality process or set of quality techniques. According to him, adopting a quality culture means the quality is reflected in the basic values, the general orientation toward work, the taken-for-granted assumptions and expectations, and the ideology of the organisation.

Saha & Hardie (2005) described a culture of quality as one that promotes leadership rather than supervision; inspires commitment on the part of staff to the chosen quality activities; uses teams as main style of management; allows staff at all levels to participate in work related decisions; promotes pride in workmanship; eliminates fear; and inspires people to seek continuous improvements. This type of culture cannot be ordered by management, it must instead be an integral part of how the organisation carries out its business.

According to Gryna et al. (2007) quality culture is an integral part of corporate culture. They illustrate two different types of quality cultures which include negative quality culture (hide the scrap scenario) and positive quality culture (climb the ladders to delight the customer scenario).

Cameron and Sine (1999) discuss research on four different quality cultures and the quality tools associated with each culture. The four

cultures are absence of quality emphasis, error detection, error prevention, and creative quality. Analysis of responses from managers in 68 organizations revealed that the more advanced levels of quality culture are associated with higher levels of organizational effectiveness. They also compare their work with Cole (1999) and Garvin (1988).

There are varieties of cultural influences on individuals and stakeholder which shape their expectations. There were referred to as the frames of reference which include national culture, vocational culture (industry, institutional and professional culture) and organisational culture (adapted from Johnson *et al.* 2007). Hence, the development of quality culture in organisation is influenced by these frames of reference. Laurent (1989) observed that national culture may shift but very slowly, and argued that while organisational culture may be more amendable to change, real changes in national culture may take generations to evolve. Furthermore Laurent (1992) point out that national culture is also quite insensitive to the transient culture of the specific industry. Indeed, the organisational culture appears to be stronger influence than vocational and national culture in developing a quality culture in construction organisation.

Culture can be divided into two major components of intrinsic (values, beliefs, assumptions, 'who and what we are', 'what we find important') and extrinsic elements (behaviour, norms, rituals, symbols, 'how we go about things around here'). The intrinsic element is a psychological element while the extrinsic element is behavioural. These elements also appear to have an individual and a collective aspect, the classification of which is on a continuum from some negative position to a positive position. The quality culture is therefore made up of a collection of individual cultures and other sub cultures within the environmental constraints and promotions of the organisation.

Although culture is unique to each organisation (Trought 1995), it is generally agreed that certain dimensions commonly define quality culture. There are thirteen (13) important dimensions of quality culture which TQM practitioners and researchers generally agree that should be present in organisations whose culture complements TQM implementation (Gryna *et al.* 2007, Geotsch and Davis 2006, Gallear and Ghobadian 2004, Kriemadis 2004, Evans and Dean, 2003, Eva Rita 2003, Ngowi 2000, Johnson 2000, Adebanjo and Kehoe 1999, Bubshait and Ali 1995, Bergman and Klefsjo 1994, Handfield and Gosh 1994). This include leadership and top management commitment, customer focus, continuous improvement, education and training, teamwork, worker involvement, empowerment, supplier partnership, rewards and recognition, communication, motivation, organisation structure, and strategic and quality policy.

DEVELOPMENT OF QUALITY CULTURE IN CONSTRUCTION INDUSTRY

The changes in perception toward quality management have opened a new outlook to war quality. More emphasis is being put on ensuring everyone understands the importance of quality and changing the attitudes and behaviour is the most challenging task. Quality is not only the manager's responsibility but it is a collective responsibility.

Figure 1 shows the framework for the development of quality culture development in construction organisation. The development of quality culture based on this framework views the overall individual to group responsibility that develops the total value of quality culture which supports the organisational culture. Everyone must play their part in the organisational culture to ensure correct understanding of the importance of quality and changing the attitude and behaviour through

the intrinsic and extrinsic element of the culture. Organisational culture will be transmitted to all organisation activities which involve intrinsic and extrinsic elements of the organisation. This will in turn be transmitted to every member in the organisation. All intrinsic and extrinsic elements of culture will affect the organisation culture throughout the development of quality culture. Consequently, it makes the concept of quality culture more acceptable with expected wider attention. It does not mean that the quality system nowadays is not relevant for practices, but this system will function well when the organisation has developed quality culture. The reason can be seen from different aspects: the existence of barrier in quality system which may be less if the organisation can develop strong quality culture.

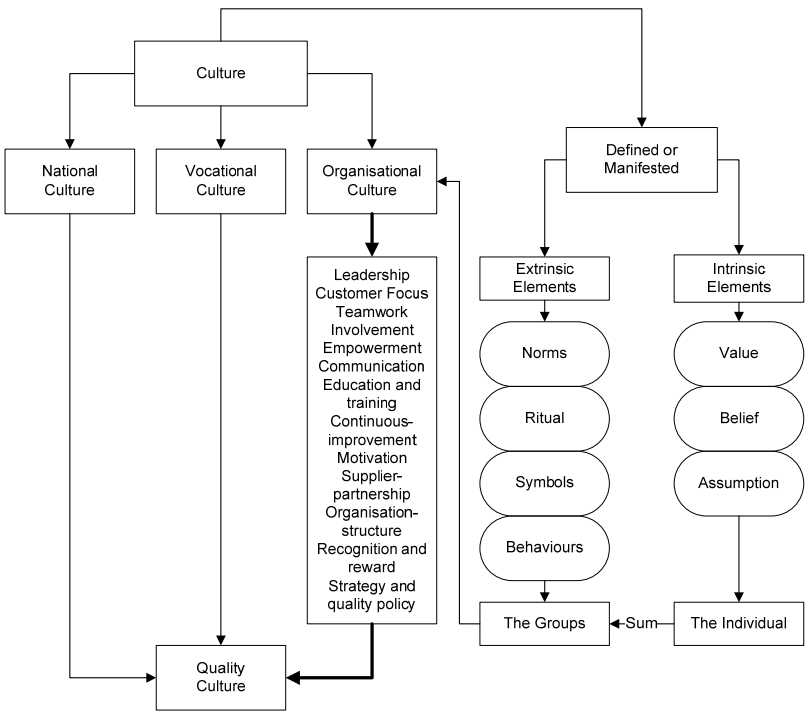

Figure 1: Framework for the development of quality culture in construction organisation

The development of this framework will employ a triangulated methodology. Preliminary interview with experts are been conducted with the aim of identifying the key factors and their importance in developing a quality culture in organisation. An industry wide questionnaire survey will then be undertaken to measure and test the proposed relationships among the key constructs outlined in the framework above and finally the validation of the framework will be done through the workshop discussion with the expert panel.

CONCLUSION

The construction industry has numerous problems in getting quality performance as a result of the complicated nature of the industry. TQM is being increasingly applied to the construction company to solve quality problem. The implementation of a TQM requires a culture change and change in management behaviour. The organisations need to shift from their current culture to a TQM culture that focuses on quality as a key strategy.

A review of literature identified thirteen important culture dimensions that contribute to successful implementation of TQM. These dimensions of quality culture should be adopted by the construction organisation in implementing TQM for continuous improvement. Initial investigations also concur that the implementation of TQM is influenced by organisational, vocational and national cultures. However, the organisational culture has stronger influence than national and vocational culture. The review shows that TQM is embedded in a culture that may or may not be consistent with the organisational, vocational or national culture. Where inconsistency is the case, conflicts arise. The proposed framework could serve as a model for developing a quality culture in organisation, so that they can

use them creatively in order to minimised inconsistencies and conflicts. Hence, these will enhance culture of quality for their continuous performance improvement and competitiveness.

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