DEVELOPING THE DIMENSIONS TO MEASURE THE SERVICE QUALITY OF CONSTRUCTION PROJECT MANAGEMENT

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Abstract

In construction industry today, the consultancy companies need to improve their service quality - an important part of consultancy service in order to enhance the customer's loyalty, boosting the business for future projects and word of mouth reputation. The question arises as to whether or not the dimensions used for measuring the quality of the generic services can be applied to the professional services such as the construction project management service. If yes, how to do so? This research is based on the literature review, especially Parasuraman et al. (1985, 1988), Hoxley (2004), Murugavarothayan et al. (2000) and Ong (2007); and the qualitative method to suggest possible set of dimensions to measure the service quality of the construction project management.

1. Basic concepts

a. The nature of service:

A service has been defined by many scholars: Kotler et al. (2002), Grönroos (1979, 2001), Gummesson (1993), and Lovelock (1991). In a brief way, Kotler & Amstrong (2001, p. 291) shaped "services are a form of a product that consist of activities, benefits, or satisfactions offered for sale that are essentially intangible and do not result in the ownership of anything." Services have the following four key distinguishing attributes: Intangibility, Inseparability, Heterogeneity, and Perishability (Kotler & Bloom, 2002).

Kotler & Keller (2006) classify products/services into three categories in the continuum based on the difficulty of evaluation of products/services quality: (1) Credence-based qualities: the buyers find hard to evaluate even after purchase such as legal service, medical service, and education service; (2) Experience-based qualities: the buyers can evaluate after purchase such as hairdressing, travel, accommodation, and hotel service; and (3) Search-based qualities: the buyers can evaluate before purchase such as clothing, in which most of services are in the first two categories. As a kind of credence–based services, professional services are also intangible, inseparable, variable and perishable. Unlike other service organizations, professional service providers have to deal with high level of uncertainty, limited service differentiability, and difficulties in quality control; have to face some distinctive problems that have not been faced by other types of service organizations such as client uncertainty, limited service differentiability, quality control difficulties, and several obstacles to mounting a successful marketing effort (Kotler et al, 2002). Named as goods of credence, the professional services attract the buyer by great faith in consultants who sell the service because services are usually lack many attributes that a buyer can confidently and competently evaluate before, or even after, making a purchase decision (Bloom, 1984).

b. Project management service in the construction industry:

Although the construction industry produces tangible items and has been categorized as a production instead of service activity, the industry still has some following features that have been characterized for service sector: they cannot be stored (perishability); it is impossible to sell the expertise inside the landmark once it is committed or used; the processes of service production and service consumption are inseparable (inseparability); the fact that construction products cannot be standardized makes the nature of heterogeneity of the industry; the intangible in the construction process can be shown in the preliminary design (intangibility).

There are various definitions of project management provided by Cleland (1990), Kerzner (1992), Turner (1994), and Pinto & Kharbanda (1995). Emphasized on the client satisfaction, Walker (2002) conceptualized project management as the planning, control and coordination of a project from conception to completion on behalf of a

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client. It is concerned with the identification of the client's objectives in terms of utility, function, quality, time and cost, and the establishment of relationships between resources. The integration, monitoring and control of the contributors to the projects and their output, the evaluation and selection of alternatives in pursuit of the client's satisfaction with the project outcome are fundamental aspects of construction project management. In summary, project management brings together a set of skills, a suite of tools, and a series of processes.

c. Service quality:

There are a number of different definitions to service quality from scholars: Peters & Austin (1985), Zeithaml & Bitner (1996), Harvey (1995), Boomsma (1993), Lewis (1993), and Juran (1988), among others. One that is commonly used claims service quality as the extent to which a service meets customers' needs or expectations i.e. whatever the customers say it is and whatever the customer perceives it to be (Buzzel & Gale, 1987; Lewis & Mitchell, 1990; Dotchin & Oakland, 1994; Asubonteng et al., 1996; and Wisniewski & Donnelly, 1996).

According to Berry et al. (1988), service quality can be considered the most powerful competitive weapon available to service providers. Other research has also established that service business success is associated with the ability to deliver superior service quality (Gale, 1990; Rudie & Wansley, 1984; and Zeithaml, 2000). Therefore, an understanding of the nature of service quality and how it is achieved in the organizations has become a priority for research (Zeithaml et al, 1988).

2. Dimensions of service quality of the construction project management

Several studies have been conducted to identify service quality dimensions that significantly contribute to quality assessments in the service environment. In this paper, we will pay attention to the following scholars.

a. The SERVQUAL by Parasuraman, Zeithaml and Berry (1985):

The Gaps model of service quality was formed by Parasuraman et al. (1985) based on ten determinants: Reliability; Responsiveness; Credibility; Competence, Access, Courtesy, Security, Communication, Tangibles, Understanding/Knowing the customer. Then, in 1988, they performed scale purification on their original model of ten determinants and reduced their model to only five dimensions, which include Tangibles, Reliability, Responsiveness, Assurance and Empathy.

Based on the said five dimensions, SERVQUAL instrument consists of a 22-item instrument for assessing service quality based on customer's perceptions, which is the differences between the customer's perceived quality and his/her expectations. The perceived quality is assessed based on service quality dimensions that correspond to the criteria. It has become apparent that SERVQUAL is the most popular standardized questionnaire used to measure service quality to date, with several applications.

b. Understanding 12 essential elements for the effective project management (Ong, 2007) via Parasuraman's 10 original quality dimensions:

Recently, Ong (2007) summarizes 12 essentials elements for the effective project management needed in formulating and facilitating the effective project management to achieve project excellence and success.

It is impressive that 12 essentials elements are closely related to some of original service quality dimensions defined by Parasuraman et al. (1985) as below description:

However, it is evident that the said elements just totally explain some skills needed for ensuring the quality of service delivery process. Thing to be pondered is about the final outcome because most of investors pay high attention to the value of what they received against the amount of money they spent on a long term investment building project.

c. Service quality model by Murugavarothayan et al. (2000):

Murugavarothayan et al. (2000) conclude the model of criteria for customer evaluation of the construction professional service offered, in which the determinants of consultant service quality will be listed and ranked in order of priority: Reliability, Assurance, Empathy, Time of Project completion, Responsiveness, Function of completed project, Quality of completed project, Final cost, Tangibles.

In general, despite being basically built on the

Table 1: Correspondence between effective elements of project management to original ten dimensions of SERVQUAL

Essential elements necessary in formulating and facilitating effective project management for construction projects.	Tangibles	Reliability	Responsiveness	Competence	Courtesy	Credibility	Security	Access	Communication	Understanding
1.Understanding of the objectives and priorities										x
2.Understanding of the project nature and characteristics										x
3. Management of the project risks							x			
4. Selection of a suitable project team	x	x		x					x	
5.Using of a suitable building procurement system		x		x					x	
6.Use of a suitable contractual arrangement		x		x					x	
7. Effective organization structure			x					x	x	
8. Having proper and appropriate planning		x		x		x	x			
9. Effective monitoring and control systems		x		x		x	x			
10.Good information recording and retrieval systems	x			x						
11. Ability to adapt and manage change			x							
12. Good commercial/business and human relations					x			x		

SERVQUAL model, the framework of service quality evaluation proposed by Murugavarothayan et al. (2000) is similar to those of Gronroos's service quality model (1982, 1990) on the aspect that it tries to emphasize on what client is left when service production process has ended.

d. Michael Hoxley's SURVEYQUAL (2000, 2004):

Hoxley (2000) has discussed the development of a 26-item scale for assessing service quality in a UK construction professional service context. The data collection involves the assessment of 244 professionals by their clients. The findings of the research are that construction professional service quality can be described as a four-dimensional construct (the writer has called the factors "what", "how", "when" and "who"). In 2004, an additional scale item which demonstrates good awareness of health and safety issues was added. Thus, it is a 27-item scale for assessing service quality in the construction professional service. The contents of criteria are listed on table 2, in which a SERVQUAL framework is referred and basically used to construct the SURVEYQUAL measure scale for the construction professional services.

e. Developing the dimensions to measure the service quality in construction project management:

Table 2: Hoxley (2004) service quality scale

SERVQUAL (PZB, 1991) Generic Service Quality Measure	SURVEYQUAL (HOXLEY, 2004) Assessment of Professional consultant	HOXLEY'S FACTORS			
		WHAT	HOW	WHEN	WHO
Modern looking equipment	XYZ uses up-to-date technology.		x		
Physical facilities visually appealing	The offices of XYZ are visually appealing.				
Employees neat-appeal	The staff of XYZ are always tidy in appearance.		x		
Material associated with service are visually appealing	The written and graphical output of XYZ is well presented.		x		
	XYZ's size is appropriate for the services they perform for me.			x	
Keeping promises					
Interest in solving problem					
Performs right first time					
Provides service at time promised	XYZ provides its services at the time it promises to.			x	
Error free records	XYZ's solutions to problems are technically correct.	x			
	XYZ demonstrates good awareness of health and safety issues.				
	The design element of XYZ's work shows creativity and capability.	x			
Employees tell you exactly when service will be performed	XYZ tells me when it will perform the service for me.			x	
Prompt service	XYZ provides prompt service.			x	
Employees always willing to help	XYZ and its employees are always willing to help me.				x
Employees never too busy to respond to your request	XYZ and its employees are never too busy to respond to my requests.				x
Behaviors of employees instills confidence in customers					
You feel safe in your transactions	I feel safe in my dealings with XYZ.	x			
	I will benefit from a long term working relationship with XYZ.	x			

Employees always courteous to me	XYZ and its employees are always polite to me.				x
Employees have the knowledge to answer questions	Employees of XYZ have the knowledge and competence to solve my problems.	x			
	XYZ and its employees have experience relevant to the service I require.	x			
	The site supervision of projects by XYZ is good.	x			
	XYZ provide good cost control of projects.	x			
Firm gives you individual attention	XYZ provide me with personal attention.				x
Operating hours convenient to customers					
	Employees of XYZ are easily accessible to me.				x
	The partners or directors of XYZ stay involved with my projects.	x			
Employees give you personal attention					
Firm has your best interests at heart	XYZ have only my best interests at heart.	x			
Employees understand your specific needs	XYZ understand my problems.	x			
	XYZ and its employees understand my organization.	x			
	XYZ and I have similar views about things that are important.	x			
	The standard of verbal presentation by employees of XYZ is good.		x		

Source: Adapted to the Queensland University of Technology Research Week International Conference 2005

Table 3: Proposed criteria to measure the service quality of construction project management

Dimension	SERVQUAL (PZB, 1991) Generic Service Quality Measure	MURUGAVAROTHAYA N (2000) Assessment of design-build consultants	HOXLEY (2004) Assessment of professional consultant	PROPOSED CRITERIA Assessment Construction Project Management service	
				Item	Sub-criteria
Tangibles (physical evidence of the service)	Modern equipment	Facilities	Modern equipment	1	Up to date equipment and software
		CAD, email, Internet			
	Physical facilities	Head/site office			
	Staff appearing	Professional appearance	Staff appearing	2	Professional appearance
		Organized function of consultant's office	Size appropriate for the service	3	Providing right level of PM staffing i.e. proper size, proper post and proper personnel
	Materials related to service	Project document	Materials related to service	4	Adequate filing systems
		Display clearly		5	Comprehensive and authentic project documents
Reliability (consistency of performance and dependability)	Providing service as promised	Keep promise to do something by a promised time	Providing service as promised	6	Providing service as promised
	Sincere interest to solve customer problem	If they fail to do, they do not focus on excuses, but solve		7	Focus on solving the problem with no excuse if failure
		Cooperation and openness with customers in solving		8	Cooperation and openness with customers in solving
	Right at the first time	Complete tasks right the first		9	Enforcing internal quality assurance system
	Provide Service at time promised	Keep promise to do something by a promised time	Providing service at time promised	10	Perform and complete promised tasks at the promised time
	Insist on error-free task	Carry out task accurately, no mistake	Solutions to problem are technically correct	11	Carrying out task technically accurately, no mistake
Responsiveness (willingness, readiness, timeliness of service)	Exact time when service will be performed				[1]
	Prompt service		Prompt service	12	Speed of response
	Willing to help	Return call ASAP	Willing to help	13	Willingness to help
		Keen to help customer		14	Willingness to receive complaint
	Respond to customer	Respond to customer quickly	Respond to customer	15	Always being available and readiness to respond to clients' needs
		Quick respond to problem when it arises			
		Available when customer need			

Assurance (knowledge and courtesy of employees and their ability to inspire trust)	Instill confidence in customer	Employees are trusted as their honest		16	Trustworthy and incorruptible PM Staff
				17	Internal regulation of banning staff from taking contractor's gifts
			Benefit from long term working		[2]
		High level of quality control by senior management	Top management involvement		[3]
				18	Having good relationships with relevant authorities [4]
	Customer feel safe in transaction	Early risk identification and avoidance accordingly	Customer feel safe in transaction	19	Health and safety awareness [5]
		Anticipate future problem and take action to avoid		20	Early identifying risk and taking action to avoid
		Thoroughly research the problems			
	Employee is courteous		Employee is polite		
	Employee has knowledge to answer your question	Effective coordination with others		21	Effectively coordinate with project participators
		The ability to do what they say they will do			[6]
		Relevant experienced and professional knowledge	Experienced employees	22	Relevant experienced
			Knowledge to solve problem	23	Relevant professional knowledge
			Site supervisor is good		[7]
			Good cost control		[7]
			Working plan is creativity and capability	24	Innovation in methods and approach
Empathy (individualized attention to customers)	Individual attention	Clients are treated importantly	Having similar view with Customer		[8]
		Individual attention	Personal attention		
	Understand your specific need	Understand customer need of project	Understanding my problems	25	clients' needs for a project
		Understand customer business environment	Understanding client's organization		[10]
	Keep your best interest at heart	Focus on customer objectives not their own		26	Respect the commitment to the project and clients
		Keep commitment to project and customer	Keep client's best interest at heart	27	Put clients' interest and need first
		Put customer interest and need first			
	Convenient operating hours		Employees are easily accessible to customer	28	Convenient operating hours with appropriate single contact points
		Listen clearly, respect customer input and act accordingly	Verbal presentation by employees is good	29	Listen clearly, respect customer input and act accordingly
				30	Quality and timing of reports produced to client
		Use language the customer can understand		31	Use language that client can understand
Function factor	**Function factor**	Suitability for purpose		32	Completed buildings are suitability for purpose
		Durable and maintainable		33	Completed buildings are durable and maintainable at low maintenance cost
		It is received well by others		34	Completed buildings are well received by end users who are clients' customers
Quality factor		Achieved quality as originally expected		35	Completed building is of original expectation of clients
		Compromise between quality and cost is achieved		36	Compromise between quality and cost is achieved
		Achieved higher quality than expected			Achieved higher quality than expected [11]
Time factor		Project completed on time		37	Project completed on time
		Early notification of delays		38	Early notification of delays
		Certainty of program			Certainty of program [12]
Cost factor		Final cost within the budget		39	Final cost within the budget
		Early notification of cost escalation		40	Early notification of cost escalation
		Certainty of final cost		41	Final cost is calculated accurately and reliably

Notes: the number in [ ] comes from the 12 essential elements of effective project management proposed by Ong, H.T (2007)

The dimensions to measure the quality of the project management service in this paper will be built based on the studies of Parasuraman et al. (1985), Murugavarothayan et al. (2000), Hoxley (2004) and Ong (2007) with some minor adjustments in order to suit the current construction environment specifically. Dimensions used for evaluating the quality of the project management service will include both process and outcome as per the proposed scale of Murugavarothayan et al. (2000) and Hoxley (2004). However, the dimensions will be modified in order to better account for all aspects of the project management service and fully reflect 12 essentials elements for the effective project management proposed by Ong (2007). There will be 41 sub-criteria employed in the scale with the main contents as shown below:

1. Assessment of service delivery process will be based on the original 5 dimensions of SERVQUAL. They are: Tangibles (4 sub-criteria); Reliability (6 sub-criteria); Responsiveness (4 sub-criteria); Assurance (9 sub-criteria); and Empathy (7 sub-criteria);

2. Assessment of the outcomes will be followed 4 achievements that a construction project should aim at. They are: Function (3 sub-criteria); Quality (2 sub-criteria); Time (2 sub-criteria); Cost (3 sub-criteria);

It is found that there is no conflict among determinants that are used to evaluate the generic service by Parasuraman et al. (1985) and the professional service quality by Hoxley (2004), Murugavarothayan et al. (2000) and Ong (2007). Since Parasuraman et al.'s SERVQUAL is widely used in the U.S., Hoxley's SURVEYQUAL and Murugavarothayan's project process and outcome criteria are accepted in UK and Australia; and Ong's twelve essential elements are recognized in Singapore, Hong Kong and Taiwan. A consideration should be made when constructing a preliminary framework to the construction industry in general, in which the key dimensions of the project service quality are addressed comprehensively (See table 3).

4. Conclusions

The construction industry is vital for the development of any nation. The construction projects are massive in size, not only in terms of dollar value but also in terms of number of entities involved. Thus, to achieve effective control of a project is a real challenge to investors, especially for those who do not come from the industry or have no experience of building process. One of management solutions that have been widely used to improve efficiency of a project is the engagement of a kind of construction consultancy service: Project Management Consultant (PMC).

In practice, due to the fierce competition in the consultancy service market nowadays, it is evident that more and more consultancy service organizations are showing greater concern to the quality of service. The higher the quality of service, the higher customer satisfaction; this is supported by Wilkie's (1990) concern of quality as a fundamental element to achieve customer satisfaction, and Kotler's (2000) implication of quality as the king to refer the essential intrinsic value of professional service.

This paper checked through the literatures, especially Parasuraman et al. (1985, 1988), Hoxley (2004), Murugavarothayan et al. (2000) and Ong (2007); and the qualitative method to suggest possible set of nine dimensions, including 41 sub-criteria, to measure the service quality of the construction project management. Obviously, these dimensions needed to be checked in the other quantitative research studies to assess how far they can be applied to the whole construction project management service■

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