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THE IMPACT OF CONTRACTOR'S CHARACTERISTICS IN GAUGING LEVEL SATISFACTION

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ABSTRACT:

The outcomes of the construction projects can be evaluated in numerous ways. One method is to measure the satisfaction of participants as represented by the differences between their expectations and perceptions. This measurement is used widely in construction as it promises benefits, such as the improvement of product delivery, and enhances services quality by identifying some necessary changes. Commonly satisfaction measurement is gauged by evaluating the level of client satisfaction of construction performance. The measurement of customer satisfaction on the other hand, is based on the quality of the end product. This evaluation is used to encourage contractors to improve their performance to a required level and to ensure that the projects are delivered as expected- in terms of time, budget and quality. Several studies of performance measurement have indicated that contractor performance is still not satisfactory, as the outcome delivered is not as required (because of cost overruns, time overruns or because it is generally unsatisfactory). This drawback may be due to the contractors' lack of expertise, motivation and/or satisfaction. The measurement of performance based on contractor satisfaction levels is still new and very few studies have yet taken place in the construction industry.

This paper examines how the characteristics of a contracting organisation – namely its experience in the industry, background, past performance, size of organisation and financial stability- may influence its satisfaction levels with regards to project performance. Previous literature reviews and interviews are used as research tools in the preliminary investigation. The outcome is expected to present a basic understanding of contractor satisfaction measurement and its potential for improving the performance of project outcomes.

Keywords: Performance measurement, contractor satisfaction levels, characteristics, benefits.

1. INTRODUCTION

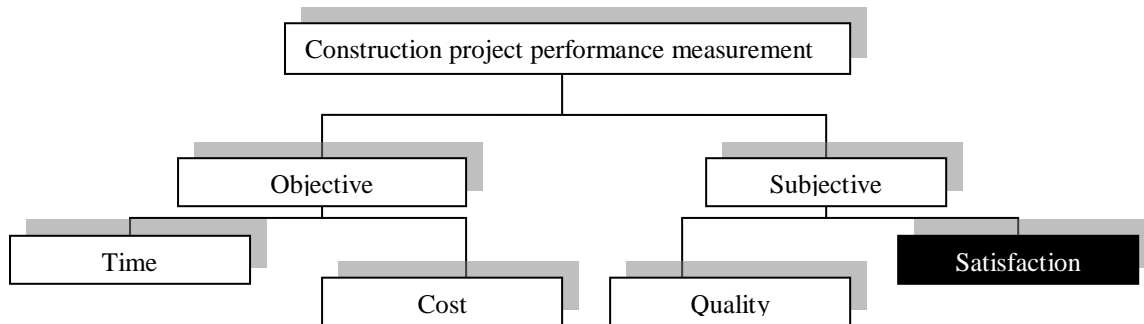
The measurement of construction project performance measurement is significant in achieving a successful project that satisfies all participants. This measurement can be made in several ways. Typically, these involve objective measures. However, subjective measurements that consider participants' satisfaction have been increasingly considered as a means of enhancing the existing methods.

Typically, contractor satisfaction (Co-S) is brought about by increases in profit levels or reduced risk of financial failure. It also is influenced by the quality of the relationships between the various project participants. The degree Co-S levels are affected by *direct factors*, such as profit and the quality of relationships, and *indirect factors* such as the characteristics of the project and the organisations involved. There is however, a lack of consensus on how to identify and measure all the factors concerned. Therefore, the general aim of this paper is to present the attributes (direct /indirect) that may influence Co-S levels and offer some means of their measurement.

2. LITERATURE REVIEW

2.1 Measurement of construction project performance

Generally, construction project performance can be assessed on *objective* (time and cost) and *subjective* (quality and satisfaction) dimensions as illustrated in Figure 1 (Chan and Chan, 2004). The objective approach uses mathematical formulae to calculate a value based on construction time, speed of the construction, time variation, cost, net present value and accident rates. The subjective approach, on the other hand, uses the opinions and personal judgement of the participants and mainly includes the quality and functionality of the building and satisfaction level of the participants.



Source: (Chan and Chan, 2004)

Figure 1: Breakdown of performance measurement

As Figure 1 shows, subjective measures such as quality and satisfaction are used in measuring level of the project performance (Chan and Chan, 2004). However, despite the relationship between the quality of outcomes, satisfaction levels and project performance having been continuously investigated by many researchers over the last ten years, these approaches are still uncommonly in practice. In subjective measurement, quality is a common determinant that is applied to measure the level of construction project performance.

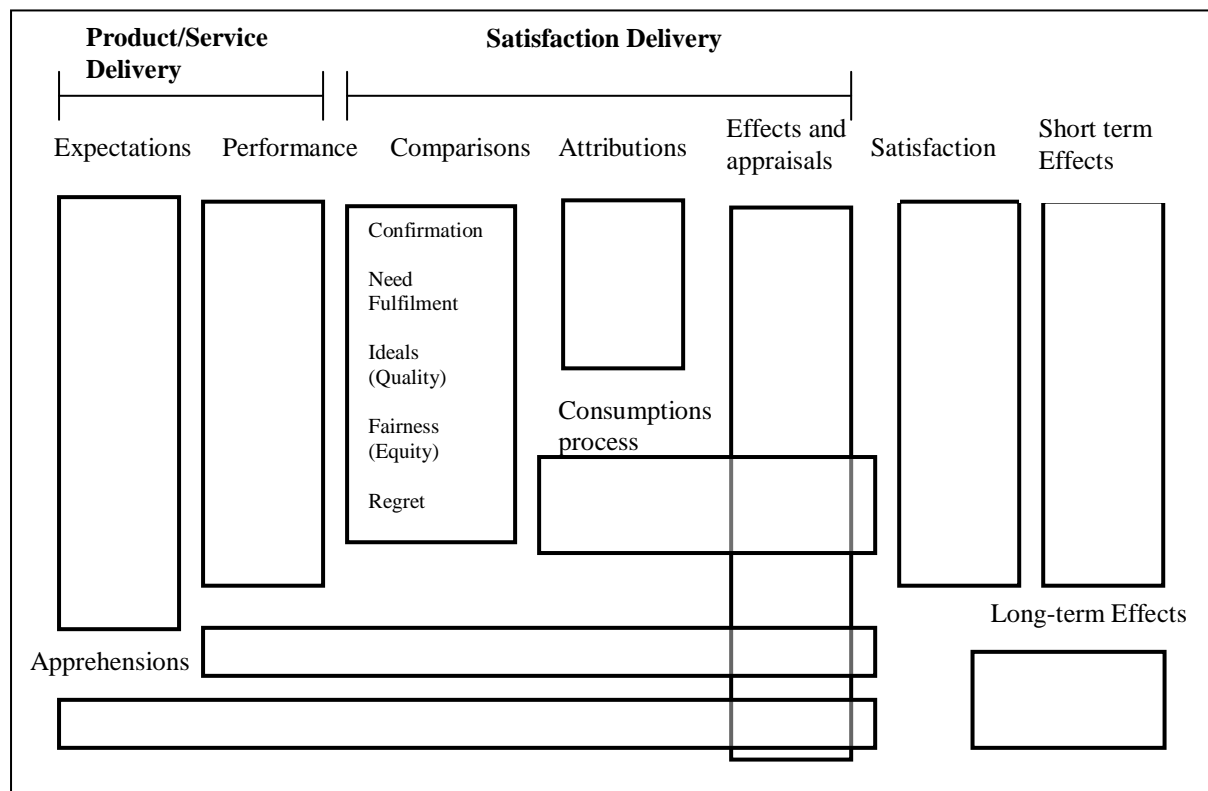
Ennew et al. (1993) define quality as the ability of service or product to perform its specified task while the measurement of project performance also can be derived from participants' satisfaction levels. Martzler et al. (2004) also agree that satisfaction measurement is a relevant method for encouraging continuous improvement of project delivery. However, these approaches suffer from limitations and are in need of improvement as described below.

2.2 Satisfaction measurement applied to performance levels

Satisfaction measurement has been carried out since the 1960s (Oliver, 1980). The measurement of satisfaction can be undertaken scientifically if there is a clear definition of satisfaction and an understanding of its underlying factors. As Oliver (1980) explains, satisfaction is derived from the Latin *satis* (enough) and *facere* (to do or make). He also emphasizes that several perspectives are needed for an extensive understanding the nature of satisfaction. Generally, psychologists and philosophers regard satisfaction as being the discrepancy between goal levels and performance levels. However, satisfaction is defined differently where service quality is concerned as it is seen as potentially all prominent dimension, is dependent on experience and involves emotions. However, as Hamner (1974) points out, satisfaction is a function of the difference between (1) actual performance and performance goals and (2) actual performance to a reference or norm group.

Major market research has used the antecedents to client satisfaction as the basis for surveys. The involved several antecedents (such as product and service quality, cost management and timeliness) in identifying the level of client satisfaction (Nowak and Washburn, 1998). Additionally, consumer expectations are determined by the implicit comparison of expected and actual outcomes. As Oliva et al. (1992) assert, consumer satisfaction and dissatisfaction have been developed in regards to the relationship between satisfaction and repeat-buying loyalty. Also, Grigoroudis and Siskos (2004) agree that satisfaction occurs as a result of three elements: perceived quality, expectations and perceived value.

In business, customer evaluation is important in order to meet customer expectations, create loyalty and meet challenges. It is an important method as it encourages service providers to maintain high service quality and assists in determining the level of employee performance and efficiency (Liu et al., 2006). Satisfaction from a business perspective is concerned with customer satisfaction. Babin and Griffin (1998) describe customer satisfaction as an evaluation of the surprise inherent in a product acquisition and /or consumption experience while Smith (1999) has emphasised that customer satisfaction can be obtained from the service quality. Additionally, satisfaction with a product refers to the individual's subjective evaluation of the various outcomes (Babin and Grisffin, 1998). The generic concept of satisfaction is usually concerned with human behavior, an action that is goal oriented and that people evaluate their action accordingly. It depends on the extent to which goals, desires, and motivations are fulfilled although it is considered to be a complex issue (Czepiel and Rosendberg, 1977). The complete process is shown in Figure 2.



Source: (Oliver, 1996)

Figure 2: The Complete Satisfaction Process

2.3 Satisfaction measurement in construction

The improvement of the current practices in construction to measuring project performance should lead to a higher product and service quality. The approach could be more effective by engaging the two main elements of objective indicators and subjective indicators. Although the use of subjective indicators may be the most appropriate for evaluating the level of performance, it is likely to be difficult (Procter et al, 1999). However, previous studies indicate satisfaction measurement to be widely used in gauging client satisfaction (Cl-S), customer satisfaction (Cu-S), occupier or home buyer satisfaction (Ho-S) levels but rarely based on contractor satisfaction (Co-S). As a result, this issue has been chosen as a major concern of this paper in order to investigate further primarily Co-S measurement in the construction industry.

Cl-S can be measured both internally and externally. Tang et al. (2003) explain that it is a function of the quality of service, quality of product and quality of manner to customers. Moreover, it is identified as a function not only of output but also of the perceptions and expectations of the clients. Perception is defined as the client's impression and feeling about the extent to which the service matches or exceeds expectations. Basically, clients perceive service in their own unique ways depending on the cumulative

memory of many positive experiences. However, Cheng et al., (2006) argue that client characteristics, including sector, size or location, may have a significant impact on CI-S levels. Egemen and Mohamed (2006) add that determination of CI-S may be more challenging as clients are more informed, more knowledgeable, more aware and more creative and innovative of what is supposed to be delivered into the building process (Smith and Love, 2001). CI-S is important to determine the performance levels of other parties, such as consultants and contractors. Previous studies show that many of the approaches that have been developed to gauge the CI-S level are associated with perceived performance and the perceived quality (Soetanto and Proverbs, 2004; Palaneeswaran et al., 2006; Cheng et al., 2006; Cheung et al., 2000).

Mbachu and Nkado (2006) suggest that their conceptual model is needed to assess client needs and monitor CI-S levels in the project development. CI-S levels based on multi-attribute measures were also used in the same study. Expectation has been found to be the main dimension used to assess the level of CI-S of the services of consultants and contractors in the development process. Here, it is clearly shown that clients are more concerned with service quality, as it is the most critical attribute that needs to be improved. Additionally, their study showed that the areas of improvement could be identified through 'Critically Index' analysis. An empirical model was also established for proactive measurements of CI-S levels at distinct stages in the development process.

Additionally, Ahmed et al. (1995) suggest that three major factors play an important role in the overall CI-S in the construction industry: client orientation, communication skills and response to complaints. Their study also considers cost, time and quality along with client orientation in the developed model. The study agrees that CI-S factors are not perceived to be equally important to the clients as two of the CI-S factors identified (client orientation and quality) showed significant differences. Another study developed a CI-S model based on an artificial neural network (Soetanto and Proverbs, 2004). This study clearly states that CI-S levels are affected by the performance of the contractor. Furthermore, the same study shows that CI-S can be influenced by two major attributes: performance attributes and CI-S attributes. In Tang et al.'s (2003) study, it is explained that the measurement of CI-S levels is a function of quality of service, quality of product and quality of manner to customers. The study stresses that clients have their own knowledge and certain standards in evaluating the quality of service provided by the consultant or designer. Several factors and indicators that affect CI-S were used in the study namely; professional level of service, competitiveness of service, timeliness of service, quality of design, degree of innovation, fulfilment of other considerations, availability of support to client and supervision of implementation.

On the other hand, Cu-S has become as one of the issues that has received considerable attention in the recent years (Karna, 2004). Kondo (2001) asserts that customers may complain when they are dissatisfied with a product they have bought or a service they have received. The absolute number and the percentage of the complaints can be used as indicators of customer dissatisfaction. The degree of Cu-S is a result of the comparison of the perceived performance of a product (service, goods) with some performance standard. The gap between the two can be defined as satisfaction if the performance is greater than the standard, whereas dissatisfaction occurs when the performance is under the standard. Additionally, to fulfill the customer's needs and requirements, the contractor needs to provide a service that consists of three elements: service product, service environment and service delivery (Maloney, 2002). Yang and Peng (2008) stress that the conceptual model developed is to measure the performance level of construction project management services in the construction industry. It is important to emphasize that the service stage consists of 6 dimensions, including the ability for change management, ability for schedule management, ability for resource management, ability for data inspection, ability for other activities and team performance. From a different perspective, Jamali (2007) states that Cu-S can be used to gauge the performance of the delivery system. In his study, the performance of the delivery system, namely Public Private Partnerships (PPPs), is measured on two main areas: improvement in efficiency (mainly measured in direct financial terms and productivity) and improvement in effectiveness (mainly indicated by quality). Forsythe (2007) indicates that research focus on Cu-S has been increased, which shows that the construction industry is increasingly recognizing Cu-S as a means of achieving competitive advantage in the market place.

In another perspective, Torbica and Stroh (2001) suggest that providing superior quality and Ho-S are rapidly becoming the ways companies differentiate themselves from competitors. Contractors' performance was examined empirically as measured by the degree of Ho-S. The study suggested that an instrument called HOMBSAT is appropriate to be used to measure Ho-S. This has been developed

with fifty one items - fourteen items representing the house design dimension, sixteen items representing the house quality dimension and twenty one items representing the service dimension. These three main dimensions have been identified as significant predictors of overall Ho-S. It is important for the contractor to define areas of importance to the occupier or home buyer as it contributes to the overall Ho-S. The outcomes are important to the contractor for improving and maintaining performance levels in order to secure opportunities in the future.

Table 1 tabulates the literature and models developed on satisfaction measurement in the construction industry. As is shown, several main dimensions can be applied to measure Co-S. and some of these are clearly significant as they are used regularly to determine CI-S, Cu-S and Ho-S.

Table 1: Literature on satisfaction measurement models/ frameworks in the construction industry

| Author/s (Year) | Variables | Components of Model/ Framework |
|-------------------------------------|--|--|
| Mbachu and Nkado (2006) | <ul style="list-style-type: none"> • Costing service • Architectural service • Costing service • Consulting engineering service • Construction project management service | <ul style="list-style-type: none"> • Client expectations from development services • Expectations from consultant • Expectations from contractors • Design services • Management services |
| Ahmed et al. (1995) | <ul style="list-style-type: none"> • Timeliness • Client orientation • Communication • Cost • Response to complaint | <ul style="list-style-type: none"> • Client orientation • Quality |
| Soetanto and Proverbs (2004) | <ul style="list-style-type: none"> • Quality of service and attitude of contractor • Main performance criteria and completion • Performance in preliminary stage • Performance of site personnel • Performance in resource management | <ul style="list-style-type: none"> • Satisfaction attributes • Performance attributes |
| Tang et al. (2003) | <ul style="list-style-type: none"> • Professionalism of service • Competitiveness of service • Timeliness of service • Quality of design • Degree of innovation • Completeness of considerations • Support to the client | <ul style="list-style-type: none"> • Client satisfaction |
| Yang and Peng (2008) | <p>In-service stage</p> <ul style="list-style-type: none"> • Ability for change management • Ability or schedule management • Ability for schedule management • Ability for resource management • Ability for data inspection • Ability for other activities <p>Post-service stage</p> <p>Team performance</p> | <ul style="list-style-type: none"> • Cost • Quality • Time • Communication • Technique/tool • Scope |

| | <ul style="list-style-type: none"> • Achievement f in-service activities • Achievement of construction payment and inspection <p>Achievement of construction tendering</p> | |
|--------------------------|---|--|
| Author/s (Year) | Variables | Components of Model/ Framework |
| Jamali, D. (2007) | <ul style="list-style-type: none"> • Equity • Attributions • Cost/benefit analyses • Emotions • Zones of tolerance • Tangibles • Reliability • Responsiveness • Assurance • Empathy | <ul style="list-style-type: none"> • Satisfaction • Subjective assessment • Antecedents • Basic service quality dimensions |
| Forsythe (2006) | <ul style="list-style-type: none"> • Housing needs recognition outcomes • Pre-purchase expectations • Perceptions • Disconfirmation • Satisfaction | <ul style="list-style-type: none"> • Purchase decision process |
| Torbica and Stroh (2001) | <ul style="list-style-type: none"> • House design dimension (DESIGN) • Service of home builder's total offer (SERVICE) • House quality (HOUSE) | <ul style="list-style-type: none"> • Product performance • Service performance • Home-buyer satisfaction |

Source: Compiled by Masrom (2009)

The literature reveals that models developed by different scholars are concerned with contrasting perspectives. Table 2 below illustrates the model in regards to client perspectives, customer perspectives and home buyer perspectives.

Table 2: Satisfaction measurement models/frameworks from different perspectives

| Client perspectives | Customer perspectives | Home-buyer perspectives |
|--|--|--|
| <ul style="list-style-type: none"> • Mbachu and Nkado (2006) • Ahmed et al. (1995) • Soetanto and Proverbs (2004) • Tang et al. (2003) | <ul style="list-style-type: none"> • Yang and Peng (2008) • Jamali, D. (2007) • Forsythe (2006) | <ul style="list-style-type: none"> • Torbica and Stroh (2001) |

Source: Compiled by Masrom (2009)

3. A RESEARCH NICHE

The models of satisfaction measurement as explained earlier, clearly highlight the lack of agreement in the Co-S. Soetanto and Proverbs (2002) stress that the satisfactory performance of participants is recognized as a prerequisite to maintaining and improving harmonious working relationships but this is still debatable. Generally, Co-S is influenced by other key participants' (for instance client, consultant, and subcontractor) performance in a project. However, the degree of Co-S cannot be determined as clearly as the satisfaction levels of other participants due to the lack of understanding of influencing attributes. It is suggested that Co-S measurement needs to be investigated further.

According to Egemen and Mohamed (2006), the use of 'soft' performance criteria such as satisfaction in construction is still at an early stage. Soetanto and Proverbs (2002) argued that the evaluation of performance uses satisfaction as a main indicator - generally focused on the client, customer and home buyer - but only a few based on Co-S. It has been emphasised that predicting Co-S is rarely studied and therefore needs to be developed as the assessment will be useful to identify areas of improvement and

for corrective actions to be done at an early stage. Moreover, this approach addresses the performance issues mainly in terms of weaknesses and strength of the participants in the project. It enables continuous improvement and harmonious working relationships to be maintained during the development process.

Further investigation is needed as the Co-S studied by Soetanto and Proverbs (2002) is mainly focused on client performance. It describes five dimensions influencing contractor satisfaction: support provided to contractors, client attitude, client understanding of their own needs, quality of clients' briefs and financial aspects of performance. Additionally, the model identified three key aspects of client performance that are found to significantly influence Co-S levels namely, the capability of the client's representative, the client's past performance and project management experience and financial soundness and reputation of the client. Other factors also considered to influence Co-S levels include the nature of the project and certain characteristics of contractors. The results of their study showed their model to have accurate predictive power as it had been validated by practitioners. It is essential for clients in improving their performance and successful project implementation. Additionally, this also promotes the development of harmonious working relationships within the construction project team. However, it is important to emphasize that client performance is not the only attribute but one of many, still not fully defined, other potential attributes possibly affecting Co-S levels. Therefore, this paper explores and investigates the main attributes that contribute to Co-S.

4. RESEARCH METHODOLOGY

This paper aims to identify the attributes of Co-S and other causes that are necessary to overcome the issues discussed above. To determine Co-S levels, two key elements need to be considered namely direct attributors and indirect attributors. These two elements are important to gauge the degree of Co-S as they greatly influence the degree of Co-S (Soetanto and Proverbs, 2002). The attributes of Co-S have been derived through an extensive review of the relevant literature and preliminary interviews. Due to the lack of consensus concerning Co-S, the many studies concerning the problems in construction industry and its failures have been examined to develop a basic understanding of Co-S. Additionally, it needs to be emphasized that only a few studies have been carried out in this particular area in developing countries.

This study used face-to-face preliminary interviews of Malaysian contractor personnel. The interviews were carried out to identify additional information and specify problems not mentioned in the literature. Six large class Malaysian contractors were selected randomly and they participated through open ended interviews. As Cavana et al.(2000) explains, preliminary information gathering involves the search for in-depth information concerning the observed problems. The preliminary interview is commonly conducted through unstructured interviews to get ideas, feel for what is happening and the reasons involved.

5. RESULTS AND DISCUSSION

The results of the literature review indicate the four main attributes of Co-S to be direct attributors. These are service quality, product quality, business performance and project characteristics. Additionally, another two main attributes of Co-S were derived from the interviews. According to the interviewees, these attributes need to be taken into account as they have a significant influence on Co-S levels. The two attributes are reputation and recognition, and transparency of government procedures and policies. This means that six main attributes play an important role and contribute to the degree of Co-S levels. On the other hand, the process of measuring Co-S also needs to take into account indirect attributors. Indirect attributors are essential to determine the level of Co-S as they are used as a reference or standard before the final decision is made. The results from the literature review and the interviews identify four important indirect attributors namely contractor's experience, contractor's level of knowledge, size of the organization and organizational culture. In order to have a better understanding of the objectives of this paper, the Co-S attributes (direct attributor) that are mainly concerned with the contractor are explained in the next section.

5.1 Co-S Attributes (Direct attributor)

This element is significant enough to be considered in every study of satisfaction levels. The Co-S attributes (direct attributor) are different as they depend on the objective and the perspectives as

mentioned in the earlier discussion. Every attribute has its own contribution to Co-S levels. This approach tends to improve the performance level of each party in order to enhance of the project outcome. Leung et al. (2003) state that construction involves numerous stakeholders and their satisfaction directly influences the performance of subsequent projects. Service quality is not only a main concern of the client, the consultant and the home buyer in gauging contractor performance but it also important to the contractor to measuring their Co-S levels. Thus, Co-S needs to be considered to ensure that the project can be delivered as expected, profitable and reputable. This study proposes several criteria of the service quality aspects for use in determining Co-S levels. Generally, the criteria derived from the literature were mentioned considerably in the interviews. Service quality can be divided into three main elements, comprising service delivery, people and communication. Service quality is judged at any stages of the construction project. It is important for the participants as the initial stage of a project involves a briefing where the client informs the project team of his intentions for the project and documents needed in general (Cheong et al., 2003). According to Lim and Ling (2002), Kometa et al. (1994) and Oyedele and Tham (2007), a project can be constructed successfully by taking into account several attributes namely: client's financial support, client's characteristics, client's management competency, clients construction experience, client's fulfillment of his responsibilities, client's duty, organizational quality of client, management skills and ability, and project communication. The contractor also suggested that the consultants and client have to give prompt feedback and make the decision immediately as it may affect the productivity of the project. Thus, it needs to be recognized that these attributes potentially influence Co-S levels.

As mentioned in the previous section, quality is assessed on service quality or product quality. Yasamis et al. (2002) stress construction quality deals with both the service received by the owner and the product received by the end-user. It should be noted contractors are end-users as they receive the end product such as drawings, information and documents provided by the designer and the client. In this section, product quality will discuss extensively based on previous literature. According to Yasamis and associates, the architectural/ engineering design of a constructed facility includes all the tasks performed to determine the functional specifications of the facility. According to Tang et al. (2003) and Oyedele and Tham (2007) and Broome and Hayes (1997), the product (design and document contract) quality can be gauged through several factors such as quality of design, buildability of design, clarity of the document, degree of innovation and completeness of other considerations. Some interviewees reported that design changes in a project need to be solved as rework regularly involves cost and schedule overruns. By recognizing the criteria to maintain the quality of the design and documentation that are provided in construction projects, the construction industry can reduce such problems and ultimately improve project performance. Thus, it is clear that product quality is important in gauging Co-S.

To improve performance, the contractor needs to determine the standard needed in gauging their Co-S levels in terms of business performance. High business performance, gauged on profits, value of money, increased opportunity for repeat business and delivery of projects within the budget provide a high level of Co-S. Contractor performance can be enhanced by improving business strategies. Adopting a proper business strategy in the business enhances contractor profitability, productivity and opportunities. In Ling et al.'s (2008) study, a firm's business strategies include the types of products and services it offers. Three generic business strategies have been highlighted in the study: 1) cost leadership; 2) differentiation and 3) focus. It has been explained further that cost leadership strategy helps a firm gain market share by being a low cost producer. This includes establishing price and overall competitiveness. However, to succeed in cost leadership, a firm needs to have access to the capital required to make a significant investment in production assets. The contractors suggested that a contracting organization needs to be more flexible, creative and versatile, and diversify its business in order to maintain its position in the market place as competition is very high.

Another attribute identified as influencing Co-S levels is the project characteristics. It has been highlighted by many scholars (Baccarini, 1996; Love et al., 2000; Hwang et al., 2009; Dainty et al., 2001) that construction projects are a variably complex and often experience cost and schedule overruns, poor performance and low quality. Several characteristics of projects have been described namely: the size and the value of the project, the uniqueness of project activities, the density of a project network, project life cycle, and the urgency of a project outcome. Additionally, the interviewees explained that different types of projects such as design and build, traditional, management contracting and partnering, have different problems. For example, a traditional contract is harder to monitor than a design and build project, as parties in traditional projects are appointed by the client and form a totally

new team. In contrast, the design and build contractor forms a team based on its evaluation of competence and ease of control. This indicates that Co-S is potentially influenced by this attribute.

Reputation and recognition also play an essential role in Co-S. It was explained by the interviewees that profit is not the sole cause of Co-S. Recognition, reward and image are also important factors in developing their business. Recognition could be based on the project being delivered successfully, completion of a prestigious project that demands a highly level of skill and novel specialities, and a project completed ahead of schedule. For instance, one of the interviewees emphasised that Co-S has been created by the recognition received from the client of their performance on a refurbishment project. The project demands the contractor to convert an old colonial house to temporary accommodation for the royal family. The contractor managed to deliver the project successfully in accordance with client expectations. Additionally, the project has been used as a benchmark and basic standard for other contractors. Thus, it is important for the contractor to secure a project in the future and in expanding their business. This clearly indicates that reputation and recognition is an important attribute in the determination of Co-S levels.

Construction projects are commonly awarded to contractors based on different types of contract and selection methods. However, one contractor pointed out that a project could be failure when it is awarded to an incapable contractor. The contractor added that having good connections are still essential in Malaysia. It needs to be emphasized that without establishing a good connection, the contractor may face many problems in securing a project. The interviewees agreed that *cronyism* could be seen as problem when a large project is awarded to a contractor regardless of its ability. In addition, Co-S is affected by government policies and systems that often change. As a result, a contractor may suffer losses because of the government's unilateral rule changes (Ling et al., 2005). The transparency of the government's procedure and policies is considered as one of the main attributes that influence the degree of Co-S.

5.2 Contractor's characteristics (Indirect attributors)

As mentioned in the previous section, the degree of Co-S needs to be determined by considering other attributes concerning the contractor's characteristics or indirect attributes. The results of the interviews show that to investigate Co-S, these four indirect attributes need to be taken into account. The impacts of the indirect attributors are discussed as follows.

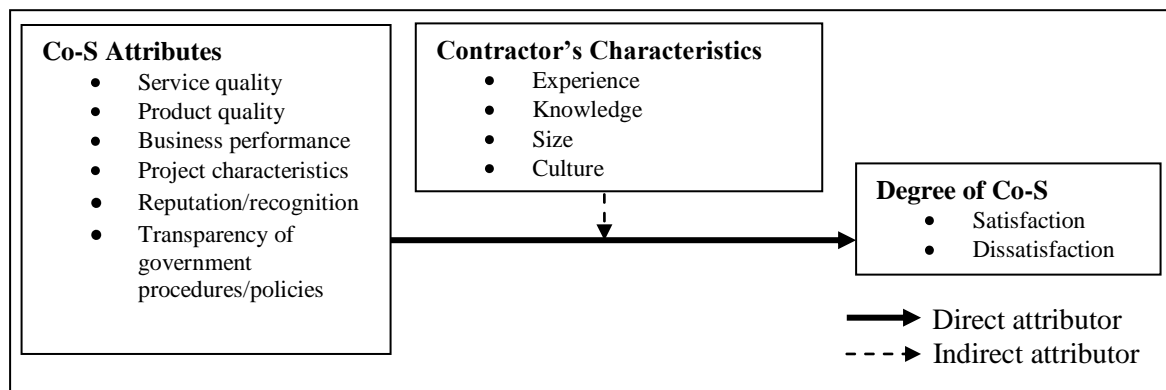
Generally, the contractor's experience is a significant criteria used to evaluate the performance of the contractor. However, this study explains that the level of experience may influence Co-S levels. The contractor's experience is commonly determined based on the number of years working in construction. Additionally, experience has a great influence on the contractor in evaluating Co-S levels. Ismail et al. (2006) assert previous experience influences the expectation towards the final outcome. The direct attributes possibly influence satisfaction levels, however contractor's expectations affects the decision as they are based on the perceived service performance. The expectation or standard of experience of a contractor could be determined by its familiarity with the market, understanding of regulations and technical and management skills. The interviewees indicate that to evaluate Co-S levels, it is important to consider experience in terms of the total work volume on similar projects, the average work volume on similar projects, working with contract types and teams, working in similar geographical conditions and working in similar weather conditions in similar projects. According to Leung et al. (2004), previous experience plays significant role in the management process. A contractor with successful construction experience and good performance in previous projects can contribute valuable ideas to a new project. This criterion is worth considering by other participants (such as the client, consultant and subcontractors) in improving the level of service and project quality.

Another characteristic that impacts on contractor satisfaction levels is knowledge. Currently, most projects require a highly level of skills in terms of technology, material and safety, thus the contractor's personnel need to improve their basic knowledge. On the other hand, an inefficient contractor (or other parties in the project) may result in poor outcomes (Kadir et al.,2005). Results of the interviews indicate that an effective and knowledgeable contractor is necessary to ensure the work is delivered according to work programme, standards of requirements and specified level of quality. It means that problems such as delays, cost overruns, poor quality and loss of profits can be rectified if contractors improve their current knowledge of technology, finance and management. The relationships between this knowledge and Co-S can be derived as the contractor sets a different level of expectations from

which judge performance. Babin and Griffin (1998) agree that different levels of knowledge could be the result of different sets of expectations. For example, a contractor with a higher qualification makes a decision on the service or product quality provided by other participants in different ways than other contractors. The results of Co-S measurement possibly can be seen from the different gaps involved. This is subject to the level of contractors' expectations and perceptions, as it based on the knowledge they have gained. The improvement in terms of knowledge, level of references and set of standards are beneficial to the contractor to maintain market position. Additionally, a higher level of Co-S standards can be used for enhancing the level of performance and secure projects in the future.

In construction, contractors can be distinguished according to size of their organization. For instance, the size of Malaysian contractors consist of many categorizes and classes - generally small, medium and large - as it based on their capital and financial capabilities. Additionally, this includes organizational structure, current workload, technical personnel and management capability (Watt et al., 2008). Larger contractors have different expectations compared with small or medium class contractors. Based on the interviews, it is emphasised that larger contractors mostly have different workloads or capacities, financial positions, equipment resources, available manpower and other safety measures that can influence Co-S levels. Although performance measurement based on Co-S levels is influenced by the several direct attributors, some literature and the results of the interviews show that characteristics such as the size of contractor indirectly impact on the degree of Co-S. For example, larger size contractors have different needs as they are as concerned with their reputation as much as profit. It also need to be mentioned that the standard of the larger contractor is higher than medium or small contractor in regards to their references, responsiveness, company image and reputation, and organizational maturity and stability. This means that Co-S levels are not only based on Co-S attributes, but size of the organization or company is also important.

Nowadays, culture is one of the significant issues in need of attention, as the construction industry faces problems and challenges. Culture has become an important topic to be considered in business organizations. Locke and Latham (1990) suggest that every organization has a culture which is determined by its history, size, corporate goals and objectives, technology of production, market and operating environment. In construction, culture is concerned with the impact of a nation's culture on construction activity, the culture of the construction project, the culture of the construction firm and the culture of the construction site. Every organization practices different systems, arrangements and procedures. The results of the interviews indicate that contractor satisfaction levels could be affected by culture as it relates to motivation, efforts to innovate, incentives offered and implementation of new technology. Additionally, as the construction industry currently emphasizes environmental issues and innovation, some requirements need to be considered. Furthermore, performance measurement based on Co-S levels become more challenging as the construction industries of developing countries penetrate into the international arena. As a result, contractors need to improve their level of performance (in terms of service and product quality) to compete with their competitors. Thus, it is necessary to consider the different organizational cultures of contractors . This is therefore important in determining Co-S levels.



Source: (Masrom , 2009)

Figure 3: A proposed conceptual model of Co-S

Finally, Figure 3 presents a proposed conceptual model that is developed based on the literature review and interviews. This clearly shows the two main elements that need to be considered in assessing Co-S levels. One of these attributes has a direct impact and the other an indirect impact on Co-S levels. Both significantly influence Co-S levels and can be evaluated as either positive or negative depending on the gaps of in Co-S levels. This approach could be useful to the construction industry as it is likely to improve understanding, enhance harmonious relationships and increase business opportunities.

6. SUMMARY AND CONCLUSION

The discussion above identifies six main Co-S attributes and four main contractor characteristics for use in predicting Co-S levels. The results also indicate that the attributes of contractor satisfaction not only influence to the degree of Co-S, but that the characteristics are likely to contribute indirectly to the judgment of either satisfaction or dissatisfaction. This approach may be useful for the contractorsto enhance and maintain their level of business performance. The study therefore provides two main elements (direct attributor and indirect attributor) for consideration in measuring performance. This may encourage clients, consultants and subcontractors in enhancing their service and product quality and increase their levels of trust of the contractor capability. Furthermore, it is may also be useful as an instrument to gauge performance levels from other perspectives, such as sustainable development and innovation processes. Finally, it is intended that the results of the study will be used to develop a conceptual framework for further application in predicting Co-S levels in Malaysia.

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