CUSTOMER SATISFACTION IN CONSTRUCTION

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ABSTRACT

Customer satisfaction can be seen either as a goal or as a measurement tool in the development of construction quality. This paper examines empirically performance of Finnish construction companies measured according to the degree of customer satisfaction as perceived by customers themselves. The purpose of the study is to explore empirically the clients' main satisfaction/dissatisfaction factors. Empirical data is gathered from nearly 400 construction projects in Finland. The views of customer with respect to the performance of contractors are measured using five factors; quality assurance and handover, environment and safety at work, co-operation, personnel, site supervision and subcontracting.

Several implications regarding customer satisfaction were drawn from the findings of the research. Customers were typically satisfied with the contractor's abilities to co-operate and the skills of contractor's workers and supervisors. In contrast, low satisfaction could be found for the items related to quality assurance and handover procedures and material. The common feature for the areas of low satisfaction items is that they come out in later phases of the construction project. In generally, the quality of contracted work and of overall service level have an effect on general satisfaction.

KEY WORDS

Performance measurement, customer satisfaction, quality, construction.

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INTRODUCTION

Customer satisfaction is an important factor in the development of the construction process and customer relationship. As construction companies face-increasing competition, greater attention continues to be placed on customer relationships and satisfied customers. Customer satisfaction enables construction companies to differentiate themselves from their competitors and create sustainable advantage. Many authors propose the importance of customer satisfaction and its use for evaluating quality from the customers' perspective (Barret, 2000; Torbica and Stroh, 2001; Maloney, 2002; Yasamis et al, 2002).

In order to measure customer satisfaction in construction, the main subjects must be identified. A customer may be defined as the owner of the project and the one that needs the constructed facility. In simple terms, the customer is the buyer of the product or service. Kamara (2000) describes the 'customer' as a body that incorporates the interests of the buyer of construction services, prospective users and other interest groups. In this paper, customer is considered as *a project owner or a general contractor in case of subcontracts* in contrast of wider perspective, whereby customer includes: the co-contractors and partners, project director, project team members, contractors and subcontractors, vendors and suppliers, users of the product and services and society.

The objective of this research is to examine and deepen the understanding of customer satisfaction in construction. The following sections discuss these efforts with a literature review. Subsequently, the results of an empirical study are presented. Finally a discussion and implications of the findings are presented.

LITERATURE REVIEW

Customer satisfaction is typically viewed as a predictor for such behavioural variables as loyalty and purchase intentions (Jones and Sasser, 1995; Anderson and Sullivan, 1993). According to Jones and Sasser (1995), complete customer satisfaction is the key to securing customer loyalty and generating superior long-term financial performance. Customer satisfaction also appears to have a stronger and more consistent effect on purchase intentions than does service quality (Cronin and Taylor, 1992). It is also widely noticed that high customer satisfaction leads to relationship strength and a deep state of collaboration has been found profitable (e.g. Storbacka et al, 1994). Anderson et al. (1994) examine briefly the links between customer-based measures (customer satisfaction) of firm performance and traditional accounting measures of economic returns. Their findings emphasise that firms, which achieve high customer satisfaction also enjoy superior economic returns. Companies use various forms of customer satisfaction approaches in developing and monitoring product/service offerings in order to manage and improve customer relationships. In addition, measuring customer satisfaction has several benefits for organisations:

- Improvement in communication between parties and enable mutual agreement

- a recognition of the demand of improvement in the process

- better understanding of the problems

- evaluation of progress towards the goal

- monitoring and reporting accomplished results and changes

To our knowledge, there are no common methods of measuring customer satisfaction in the construction industry. Torbica & Stroh (2001) emphasize that the use of "soft" performance criteria, such as customer satisfaction, in construction is at an early evolutionary stage. The research literature has focused on satisfaction with consumer goods and services but a widely used measure of industrial customers satisfaction does not exist (Torbica and Stroh, 2001; Homburg and Rudolph 2001). In addition, it is important to take into account that business-to-business marketing is more complex than consumer marketing. It is a more rationalized buying process; many more people and procedures are generally involved in the process, and products/services are more complex (e.g. Cooper and Jackson, 1988). Tikkanen and Alajoutsijärvi (2002) also argue that measurement models in industrial markets are too simplistic and mechanistic to take into account the complexity of real-life. Thus, the creation of a common satisfaction measurement and procedure is important in construction, where projects organizations and collaborative relationships often are of a ´one-off´ nature.

In construction, the relationship between client and contractor constitutes a multilevel complex in which parties operate simultaneously and collaborate with in-groups of networks. Therefore, customer satisfaction in construction should be understood as a relationship-specific rather than a transaction specific construct (see e.g. Homburgh and Rudolph, 2001). In contrast to other areas of production, where the relationship between client and supplier is frequently long term, the relationship in construction is periodic and dependent on the duration of the project. Generally, construction does not share the benefits of regular-line activities. As a result, traditional customer relationship management models that have been used in product manufacturing will not produce the best result in construction. In addition, the mutual co-operation between customer and contractor is strongly emphasised and the customer's performance has considerable implications for the outcome of the construction project. The complex nature of the construction process, changes in project organisation, and the uniqueness of each project make it difficult to exploit past experiences and customer feedback in the future.

Soetanto et al. (2001) additionally recognise the satisfactory performance of participants as a prerequisite to maintaining harmonious working relationships. They argue that satisfaction surveys provide information to project participants that can be used to help improve their performance. Results of their importance-performance analysis suggest that contractors need to improve their performance in most aspects of performance. In terms of criteria in need for improvement, both clients and architects considered completion of defects the priority. Barrett (2000) similarly see that client satisfaction is the ultimate measure of construction quality and will only be achieved if construction companies adopt a strong external orientation in order to address the full range of quality dimensions that impact on the client.

Customer satisfaction can be used for evaluation of quality and ultimately for assessment of the success of a company's quality improvement programme. According to Torbica and Stroh (2001), a quality improvement effort will lead to a higher product and service quality, which will lead to improved customer satisfaction. Their study has confirmed that implementation of TQM is positively associated with homebuyer satisfaction, and it is the

"total offering" that generates the total degree of customer satisfaction. The customer satisfaction experienced with the constructed facility and the contracting service defines project-level quality in construction (Yasamis et al, 2002).

EXPECTATIONS AND QUALITY

Customers' expectations and perceived service quality are the functions of customer satisfaction. Generally, the majority of researchers agree that the overriding model of satisfaction is the confirmation/disconfirmation model. The most well known models of perceived service quality, which are based on the disconfirmation paradigm, have been presented by Parasuraman et al. (1988). The disconfirmation model assumes that customers have certain preconceived expectations of a product or service before actually consuming it. These expectations create a frame of reference by which one makes comparative judgements and gains satisfaction. Customers compare the perceived performance of a product (service, good) with some performance standard. Customers are satisfied when the perceived performance is greater than standard (positively disconfirmed). Dissatisfaction is perceived when the performance falls short of the standard (negatively disconfirmed). When quality is ambiguous or difficult to evaluate, then expectations play a greater role in determining satisfaction. In addition, quality that falls short of expectations has a greater impact on satisfaction and repurchase intentions than quality that exceeds expectations (Andersson and Sullivan, 1993).

There has also been debate among researchers concerning the distinction between service quality and customer satisfaction. A wide range of recent literature suggests that service quality and customer satisfaction are conceptually distinct but closely related constructs, and recent evidence suggest that satisfaction is an antecedent of service quality. Perceived quality precedes satisfaction, which is closely related to the customers behavioural responses (Bitner et al, 1990; Cronin and Taylor, 1992). Ojasalo (1999) associates service quality with the words "evaluation" and "opinion", and satisfaction with the word "feeling".

Customer satisfaction can be experienced at the specific encounter level or at an overall level of satisfaction. Service encounter satisfaction is the customer's satisfaction or dissatisfaction with a discrete service encounter. Overall satisfaction is the customer's overall satisfaction or dissatisfaction with the organization based on all encounters and experiences with that particular organization. It is a question of the accumulation of satisfaction in the relationship. Cumulative satisfaction is a more fundamental indicator of the firm's past, current, and future performance. According to Andersson et al (1994), it is the cumulative satisfaction that motivates a firm's investment in customer satisfaction. A customer can be dissatisfied with a specific service encounter, but satisfied overall based on evaluation of the total purchase.

We argue that benefits of high customer satisfaction in the construction are not as straightforward as stated in other areas of production. The main reason for this is the temporary, unique and one-off nature of construction. As stated earlier, distinguishing characteristics of projects will broadly affect the relationship between the customer and the contractor.

Thus, customers' expectations play an important role in the evaluation of performance. Customer satisfaction in the construction industry can be defined as how well a contractor

meets the customer's expectations. The customer formulates expectations as to what will happen as a result of an action when selecting a particular contractor. The customer's expectations of construction are a function of several factors: the customer's past or direct experiences with the contractor and similar contractors, word of mouth about the contractor, and the customer's personal needs. In addition, a contractor's marketing activities and image and the customer's own investment in the project and the relationship affect customers' expectations.

In construction, customer satisfaction does not guarantee loyalty (future work with that customer). A contractor's selection criteria are mainly based on price but also on the contractor's technical and financial capability and previous experiences of the contractor's competence. Satisfaction is therefore reflective of customers' experiences of and confidence in the contractors' abilities and co-operation. A dissatisfied customer will not work with that contractor in the future but a satisfied customer would not necessarily guarantee future projects to contractor. Therefore, the main benefit of high customer satisfaction for a contractor is the opportunity to remain a customer's potential partner in the future. However, the essential objective in improving customer satisfaction is to achieve client loyalty, which can lead, for example, to partnering arrangements. A customer also perceives how he receives the product and how he experiences the simultaneous production and consumption process, which emphasise the meaning of contractors' ability to co-operate (Grönroos, 2000).

SATISFACTION SURVEY

This survey was gathered up by using RALA's (the Construction Quality Association) client feedback data. RALA is an independent joint association representing clients, contractors and consultants in Finland. Its aim is to promote prerequisites of construction quality through three tools: certification of competence, certification of quality systems and project feedback system. The basis of RALA's feedback system is the standard evaluation, which is part of each project (figure 1). In practice, the client (owner, or general contractor in case of subcontracts) fills in a form at project conclusion and delivers it to RALA.

The performance criteria used was developed in expert meetings with a wide range of representatives from construction management and the real estate industry in Finland. Feedback system measures contractors performance using a 22-item scale according to five subheadings, namely 1) quality assurance and handover procedures, 2) environment and safety at work, 3) functional modes of co-operation, 4) personnel, 5) site supervision and subcontracts of the contractor. Evaluated factors are shown in table 1 (italicized items are subheadings). The scale used throughout is from 1 (indicating very high dissatisfaction) to 5 (indicating very high satisfaction) for all the items. Gathering the survey data contains 346 projects. The mix of project-types was: office (54%), residential (27%) and other (consisting of industrial and infrastructures) project types (19%).

Figure 1: RALA's feedback system

RESULTS

This section outlines the results from analyses that were conducted on empirical data obtained from the survey. Table 1 summarizes the different factors of customer satisfaction in the construction process. The means vary from 2,96 (workability of handover material and maintenance manual) to 3,83 (capacity of supplier's personnel for co-operation). The overall customer satisfaction rate is 3,45.

Table 1: Means, standard deviation, rank and overall satisfaction

Factor	Variable	Mean	StD	Rank
Quality assurance and hand over	Contracted work quality	3,52	0,80	7
	Management and implementation of agreed quality assurance procedures	3,26	0,91	19
	Workability of handover material and maintenance manual	2,96	1,08	22
	Quality of assignment material and maintenance manual	3,21	0,86	21
	Degree of completion at handover inspection	3,34	1,01	15
	Repair of defects and deficiencies noticed during handover inspection	3,28	1,04	18
Environment and safety at work	Cleanliness and order on site	3,33	0,83	16
	Management of work safety on site	3,42	0,77	11
	Management of environmental issues and related know-how on site	3,31	0,76	17
	Tending to official obligations	3,69	0,83	4
Personnel	Skill of supplier's work supervisors	3,73	0,94	3
	Skill of supplier's workers	3,48	0,75	8
	Commitment of supplier's employees to set goals	3,38	0,83	13
Co-operation	Capacity of supplier's personnel for co-operation	3,83	0,96	1
	Agreement about changes	3,58	0,89	5
	Tending to notices of defect	3,36	0,91	14
	Information flow on site	3,42	0,82	12
	Access of supplier's employees	3,79	0,88	2
	Quality of overall service level	3,54	0,87	6
Site supervision and subcontracting	Conformity of supplier's subcontracting to contract	3,47	0,82	10
	Tending to site supervision duties	3,48	0,87	9
	Adherence to schedule in accordance with common agreements	3,26	1,10	20
Overall satisfaction		**3,45**		

There is an extensive difference between the loyalty of merely satisfied and completely satisfied customers. Customers who are just satisfied find it easy to switch suppliers when a better offer comes along and the level of customer satisfaction emphasise in markets where competition is intense (Kotler, 1994; Jones and Jasser, 1995). Figure 2 illustrates percentage distributions of respondents' view related to five main factors. It can be seen from the figure that the values for "completely satisfied" range from 12,1 percent (QA and handover) to 26,3 percent (Co-operation). Approximately half of the respondents were satisfied (range 4), 2,0 percent were dissatisfied (range 1-2) and 26 percent were neutral (not satisfied/not dissatisfied) to the contractors performance. In summary, almost 30 percent of the respondents were less than satisfied.
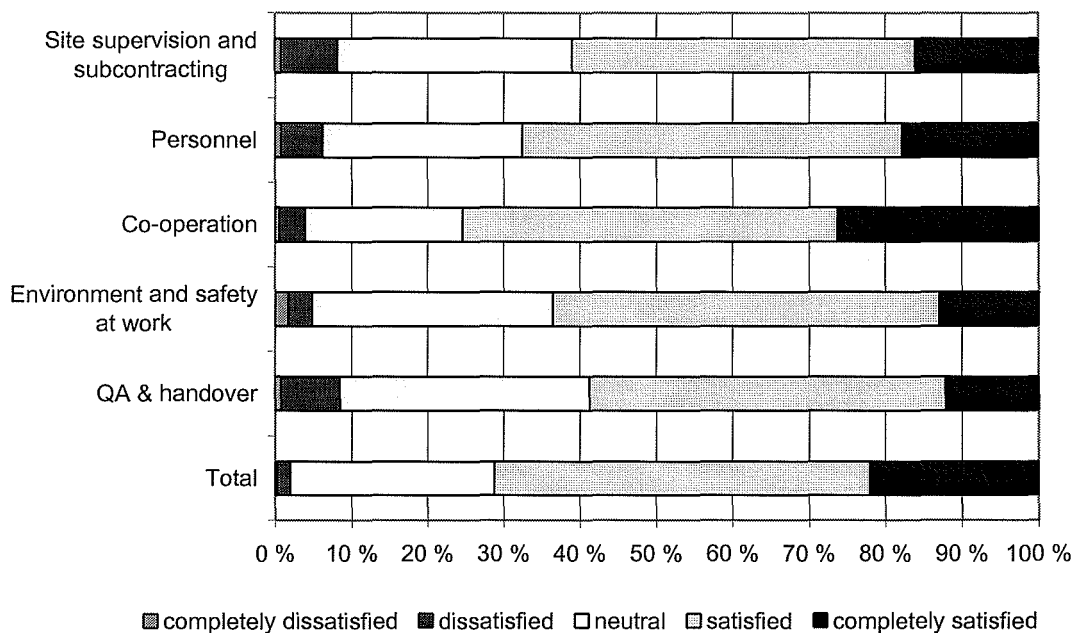

Figure 2: Percentage distributions of main factors

A regression analysis was applied to identify those factors that have the greatest influence on overall satisfaction. Quality, environment and safety at work, personnel, co-operation and site supervision, and subcontracting were used as the predictor variables, and the overall customer satisfaction score as the outcome variable. The overall satisfaction score was produced by summing the mean satisfaction ratings of the five variables and dividing by five. The results of the analyses are presented in table 2.

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The F value (9890,639) is highly significant (p<0,000). As shown in Table 2, the factors concerning quality and co-operation have a strong effect on overall satisfaction. Therefore, these factors can be used as a basis for improving overall satisfaction.

Table 2: Results of multiple regression analyses

	Coefficients	t
Quality assurance and handover	0,292	34,301
Environment and safety at work	0,094	16,713
Co-operation	0,316	35,389
Personnel	0,137	20,022
Site supervision and subcontracting	0,136	16,443

Note: Overall F=9890,636; p<0,000

In order to further illustrate the relationship between contracted work quality and quality of overall service level, a cross-tabulation procedure was been employed. The data of both dimensions were collapsed into a three-point scale (low, medium and high). The result of the cross-tabulation is summarized in Table 3. The entry in each cell indicates the number of respondents corresponding to that particular cell, and the values in brackets are the corresponding percentages of the total respondents.

Table 3: Cross-tabulation results between contracted work quality and quality of overall service level

Quality of overall service level	Contracted work quality							
	Low		Medium		High		Total	
	n	(%)	n	(%)	n	(%)	n	(%)
Low	24	6,9	11	3,2	1	0,3	36	10,4
Medium	13	3,8	73	21,1	24	6,9	110	31,8
High	5	1,4	28	8,1	167	48,3	200	57,8
Total	42	12,1	112	32,4	192	55,5	346	100

The cross tabulation provides information about the percentage of respondents whose perception of quality of overall service level and contracted work quality are either low and low, medium and medium or high and high. It can be seen from the table that there is complete agreement regarding 76,3 percent of the respondents' perceptions of the service level and contracted work quality. "Other" combinations demonstrate a mainly medium-high axis. Respondents whose perceptions of service level are low report poor levels of contracted work quality and so forth. An increase in one is likely to lead to an increase in another. This result indicates that there exists a dependency between quality of overall service level and contracted work quality.

DISCUSSION AND CONCLUSION

This article has reviewed customer satisfaction in the Finnish construction industry. Several implications regarding customer satisfaction in the construction were drawn from the findings of the research. Customers were typically satisfied with the contractor's abilities to co-operate and the skills of contractor's workers and supervisors. However, low satisfaction could be found for the items related to quality assurance and handover: workability of handover material and maintenance manual, quality of assignment material, maintenance manual and repair of defects and deficiencies noticed during handover inspection. The result was a surprise, because a broadly held assumption in the construction industry is that constructors' abilities to co-operate are rather poor.

The common feature of the low satisfaction items according to this survey is that they come out in later phases of the construction project and they also require mutual co-operation between parties. The result can also suggest that contractor and client have not planned the completion stage or it has been poorly designed. Although not explicitly stated in the result, it could indicate that there might be a problem in managing schedules. Construction delay and overrun is a critical issue in the construction business and it has a strong influence on the success of a project. The result of the regression analysis shows that items related to quality assurance and handover have a strong impact on overall customer satisfaction. Contractors' ability to co-operate can reduce the impact of poor quality assurance in the completion stage.
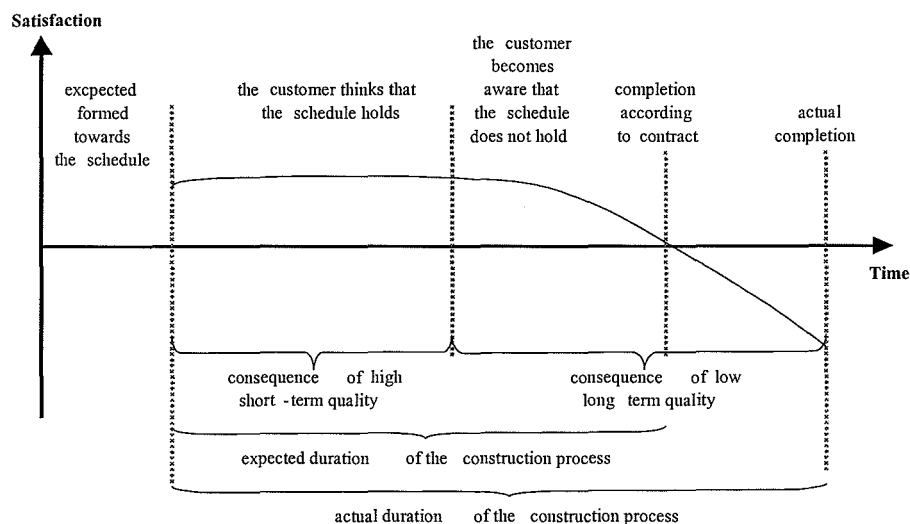

Figure 3. High short-term quality and low long-term quality of a schedule of the construction process. Adapted from Ojasalo, J., *Quality Dynamics in Professional Services*. Helsinki: Swedish School of Economics, Finland, 1994, p.121.

Figure 3 illustrates the construction schedule and changes in customer satisfaction during the process. The customer is satisfied with the schedule at the beginning of the process, and dissatisfied during the rest of it. When the customer becomes aware that the schedule does not hold, customer satisfaction towards the schedule changes significantly, from a high to a

low level. The reason for the low satisfaction remains during the rest of the process, if nothing changes.

The following situation can also derive from deficient communication in the construction process. The contractor is somehow unable to communicate essential issues, such as schedule, to the customer. In our experience, the reason for this throughout the industry is optimism; the contractor believes that things are going to change for the better, even if the assumption it is not realistic. It is also widely noticed that contractors skate around negative subjects in communication with the customer. On the other hand, by well-timed communication it is also possible to reduce the consequences of failure in managing schedules. The previous situation can be illustrated by situations in which contractors pursue short-term customer satisfaction at the expense of long-term quality and high customer satisfaction.

LIMITATIONS AND DIRECTIONS FOR FURTHER RESEARCH

While this study is among the first to measure customer satisfaction in the Finnish construction industry, it is not without limitations. The evaluation process from the first experiences of RALA's feedback system is at an early stage, but there are yet some viewpoints to consider more closely.

Firstly, the background of the respondent must be determined more precisely on the survey. As mentioned earlier in this paper, the client (owner, or general contractor in case of subcontracts) fills in a form at project conclusion and delivers it to RALA. It is important to take into account that, depending on the respondent's role in the construction process, he/she might have a different role and distance to the construction project. In other words, it is a question of levels of customership; in which levels in the organisation measurement has been taken. For example, it is strongly possible that the project consultant as a client's representative measures success of the project differently to the client's project manager. Schellhase et al (1999) emphasise that if several people are involved in the decision process, it is not sensible to limit the survey to one person at the company when collecting data on customer satisfaction. Indeed, if possible the satisfaction of all members of the client's project team should be surveyed. Although it could be difficult to create a situation in which no one dominates the discussion.

A customer feedback system should tend to develop so as to measure contractors' actual perceived performance and perceived importance of the factors, for example by using a three-dimensional approach:

- basic requirements, "must-be" factors which always cause dissatisfaction

- clients explicitly revealed requirements, which constitutes the basis of contractors' selection criteria

- excitement requirements, which have a positive effect on customer satisfaction when customers' expectations are exceeded

RALA's customer feedback system gives opportunities for benchmarks of customer satisfaction within the construction industry in Finland. These benchmarks enable organizations to monitor customer perceptions of their service and to improve their service

performance. Reference groups for benchmarks could develop, for example, according to branches of the industry, size of the construction company or the size of the projects. However, feedback system provides a workable and resource-saving alternative for collecting customer feedback. Feedback information may be considered more objective than a contractor's own feedback surveys, because social interaction components do not exist.

ACKNOWLEDGEMENTS

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