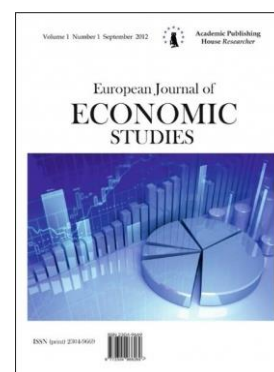


Copyright © 2017 by Academic Publishing House Researcher s.r.o.



Published in Slovak Republic
European Journal of Economic Studies
Has been issued since 2012.
ISSN: 2304-9669
E-ISSN: 2305-6282
2017, 6(2): 104-114

DOI: 10.13187/es.2017.6.104

www.ejournal2.com

Study on Client-Satisfaction Factors in Construction Industry

Meliha Duljevic ^{a,*}, Mersid Poturak ^a

^aInternational Burch University, Bosnia and Herzegovina

Abstract

Client satisfaction represents a crucial factor in the development and management of the construction process, as well in the creation of professional company-client relationships. Moreover, it is one of the major determinants of project success and therefore is a fundamental issue for construction managers who must constantly seek to improve their performance in order to survive in the marketplace. Providing superior quality and keeping customers satisfied are rapidly becoming the ways that companies use to differentiate themselves from competitors. The main objective of this study is to establish a comprehensive list of factors used for measuring client satisfaction and to study their influence on client satisfaction in the construction industry. The purpose of this study is to identify main client satisfaction factors and to advance both theoretical and practical understanding of their satisfaction in construction industry. A survey conducted in this study was focused on clients of different companies from construction industry in Bosnia and Herzegovina (B&H). The perceptions of clients with respect to the performance of contractors were measured using five factors including timeliness, cost, quality, client orientation and safety. Through the analysis of data generated by the survey, it is concluded that all the factors identified in the client-satisfaction model do not possess the same significance when it comes to satisfying clients. The approach of this research is useful to construction firms, not only in B&H, but also in other places, for identifying and improving their weak areas and improving the service quality for their clients.

Keywords: client satisfaction, satisfaction factors, construction industry, Bosnia & Herzegovina.

1. Introduction

Satisfaction is difficult to define and therefore there is little consensus of the definition of satisfaction. Locke (1970) asserted that satisfaction is a function of comparison between an individual's perception of an outcome and its expectation for that outcome. Levels of satisfaction achieved hence are dependent on an individual's perceptive thinking and is subjective in nature in the context of satisfaction measurement.

For organizations, customer satisfaction is an effective approach to differentiate themselves from competitors and gain competitive advantage (Woodruff, 1997), but it is also one of the key issues in their efforts towards improving quality (Fornell et al., 1996). Companies use different forms of customer/client satisfaction approaches in developing and monitoring product/service offerings in order to manage and improve customer relationships (Burns & Bush, 2006). Likewise, measuring

* Corresponding author

E-mail addresses: melihaduljevic@outlook.com (M. Duljevic), poturak@ibu.edu.ba (M. Poturak)

customer satisfaction has numerous benefits for companies, such as improvement in communication between parties, enabling mutual agreement, assessment of progress toward the goals, and monitoring accomplished results and changes (Burns, Bush, 2006; Naumann, Giel, 1995).

In the construction domain, satisfaction and client satisfaction in particular, plays a fundamental role in determining the perceived success of a project (Ashley et al., 1987; Bresnen, Haslam, 1991). In the construction industry, client satisfaction has remained an elusive and challenging issue for some considerable time (Banwell, 1964; Latham, 1994; Egan, 2002). However, the importance of customer satisfaction and orientation has increased due to the tightened competition and more demand from customers as a response to the industry's poor performance. Client satisfaction in the construction industry can be defined as how well a contractor meets the client's expectation. Satisfaction can be described in terms of a process of "expectancy disconfirmation" that is, the confirmation or disconfirmation of an expectation where satisfaction is founded mostly on meeting or exceeding expectations (Maloney, 2002).

Customer satisfaction has been identified as a quality dimension in construction (Yasamis et al., 2002) and as an important factor representing success of a project (Chan, Chan, 2004; Delgado, Aspinwall, 2005). Customer satisfaction additionally can be considered as a method for expanding the construction process (Egan, 1998; Liu, Walker, 1998) and a tool for mutual learning (Love et al., 2000; Bertelsen, 2004). The main task of the construction industry is to provide clients with facilities that meet their needs and expectations. Assuring operational quality at every stage of the construction process should make sure that the quality of the final product will satisfy the final client (Jang et al., 2003).

The subject matter of client satisfaction in the construction sector could be trace back to the 1980's. According to research conducted by Ashley et al., (1987) on the determinants of the success of construction projects, six criteria intended for measuring success were highlighted. These include budget, schedule, client satisfaction, functionality, contractor satisfaction, and project-manager/team satisfaction. Therefore, the creation of a common client satisfaction measurement or approach is crucial in the construction industry.

In spite of the fact that the construction industry has become aware of the importance of client satisfaction, it is equally important to know how well the industry is meeting client expectations. The main objective of this study is to identify a comprehensive list of factors for measuring client satisfaction and to study their influence on client satisfaction in the construction industry. Firstly, the literature is examined with the focus on the concept of satisfaction and its assessment and the survey was prepared. Then based on the results of the survey, the major factors influencing client satisfaction are identified. This study would contribute knowledge area by identifying the factors of clients' satisfaction, criteria for measurement, and actual levels of satisfaction, as perceived by clients. For managers particularly this research offers information on groups of factors leading to high levels of customer satisfaction in construction business. They can use the information in allocating resources and making better decisions on which factors to focus.

2. Literature review

2.1 Satisfaction Concept in Construction Industry

Satisfaction is regarded as a function of comparison between an individual's perception of an outcome and its expectation for that outcome (Locke, 1970), or a comparison of pre-purchase expectations and post-purchase product or service performance (Churchill, Serprenant, 1982). The construction industry is that part of the economy, which deals with the design, construction, maintenance, and utilization as well as with the modulation, modification and demolition, or deconstruction of constructs (Rußig et al., 1996). It is a major sector in most national economies and a major contributor to environmental changes, both in terms of designing the built environment as well as in terms of anthropogenic effects on the environment.

In the construction industry, the measurement of client satisfaction is often associated with performance and quality assessment in the context of products or services received by the client (Parasuraman et al., 1985; Soetanto, Proverbs, 2004). A customer's background and experiences play important roles in providing the relevant standards of comparison, or frame of reference (Smith et al., 1969). The comparison involves what the customer believes will happen with what is actually provided (Parasuraman et al., 1985). Different customers are likely to have different standards/expectations, which are pertinent to their judgment to the products or services.

Customer services literature suggests that a customer's expectations and perceptions of performance have a direct effect on their satisfaction (Locke, 1970; Oliver, 1981; Parasuraman et al., 1985). A number of models have been developed to ease the measurement of satisfaction including SERVQUAL (Parasuraman et al., 1985; Siu et al., 2001), performance assessment (Soetanto, Proverbs, 2004) and business excellence models (EFQM, 2005).

2.2 Construction Industry in Bosnia & Herzegovina

Construction can be defined as 'the mobilization and utilization of capital and specialized employees, materials, and equipment to assemble materials and equipment on a particular site in accordance with drawings, specifications, and contract documents arranged to serve the purposes of the client' (Merrit et al., 1996, p. 4.1). Construction sector in B&H is for many years in a very difficult state. Although in 1990's this sector was employing about 100,000 people, and comprised between 10 % and 15 % of total B&H employment, today there are only 33,149 employees in the construction sector, making just 4.7 % of all employees in B&H (Statistic Agency, 2014). It is a compelling notion that in 2013, the value of completed construction work in B&H was merely 1,403,605,000 KM (Šehanović, 2008). When it is considered that there are 4.263 domestic construction companies in B&H (cumulative data taken from the data of Republic Agency for Statistics of RS and Federal Agency for Statistics of FB&H), it is obvious that the fight for the one's market stake is tough. Because of that, it is necessary to use all the potential from all business strategies that can result with a positive outcome of that fight.

The construction sector in Bosnia and Herzegovina has a long history and great potentials, especially when it comes to human resources. Most building materials are readily available in B&H. Virtually all of the components needed to repair existing structures and to build new ones, starting from motorways and airports to commercial premises and housing, are produced by the B&H businesses. This sector of the industry offers considerable scope for export development (FIPA, 2014). Currently, this sector amounts to 5,3 % of B&H exports in the total realized sale of the B&H products at the foreign market. Important note to emphasize for this sector that in 2011, according to FIPA (2014) it achieved the strongest nominal growth comparing to other sectors (4,8 %).

2.3 Client-Satisfaction Factors

2.3.1 Timeliness

Clients, contractors and consultants often see timely completion of a construction project as a key criterion of project success. In the construction industry, the goal of project control is to ensure the projects finish on time, within budget and achieving other project objectives. It is a difficult task undertaken by project managers in practice, which involves continuously measuring progress; evaluating plans; and taking corrective actions when needed (Kerzner, 2003). NEDO (1983) states that a disciplined management effort is needed to complete a construction project on time, and that this determined management effort would help to control both costs and quality. This is equivalent to saying that the client's objectives can be achieved through a management effort that recognizes the interdependence of time, cost and quality. During the last few decades, numerous project control methods, for instance Gantt Bar Chart, Program Evaluation and Review Technique (PERT) and Critical Path Method (CPM), have been developed (Nicholas, 2001; Lester, 2000). Even with the wide use of these methods and software packages in practice, numerous construction projects still suffer time and cost overruns.

2.3.2 Cost

Cost as defined by Stewart (1991) represents the total amount of all the resources necessary to perform the activity. "Cost is among the main considerations during the project management life cycle and can be regarded as one of the most important parameters of a project and the driving force of project success" (Azhar et al., 2008: 7). Gido and Clements (2003) asserted that cost performance is an effective technique in project management and it is widely accepted in the literature and industry. Ashworth (1994) stated that one of the client's requirements when it comes to construction project is the estimation of its expected cost. Appropriate cost control is important since it is the general trend towards greater cost-effectiveness and guarantees construction costs not only in the context of initial costs, but with regard to life-cycle costs or total cost appraisal. Cost estimation presents the base for project management, business planning, budget preparation as well as cost and schedule control (Marjuki, 2006).

2.3.3 Quality

A project might be completed on time and within budget, however unless it achieves the specified quality or performance criterion it will be considered to be a disappointment or even a complete failure. The concept of quality is multidimensional and incorporates aspects that may be appraised subjectively. The Latham Report (1994) distinguished a number of quality aspects that clients may look for in a satisfactory construction project: „pleasant to look at; free from defects on completion; fit for the purpose; supported by worthwhile guarantees; satisfactory durability and customer delight“. Some of these aspects are inherent in the design of the project, while others relate to how successfully the contractor constructs that design on site. From the viewpoint of a construction company, quality management in construction projects should mean maintaining the quality of construction works at the required standard to achieve customers' satisfaction that would bring long-term competitiveness and business survival for the companies (Tan, Abdul-Rahman, 2005). In addition to the abovementioned, Harris and McCaffer, (2001) stated that quality management practices incorporates all the means employed by managers in an effort to implement their quality policies. These activities comprise quality planning, quality control, quality assurance and quality improvement.

2.3.4 Client Orientation

The emergence of the customer as the champion for change has increased the pressure on the construction industry to offer the higher quality along with better service in order to satisfy customer needs and expectations. Rising customer expectations and greater competitiveness has become a key characteristic of the construction industry in developed economies over the last decade (Copare, 1992; Raftery et al., 1998). The term 'customer/client' should be comprehended in its wider sense to include all parties and individuals who would influence the character, scope and nature of the product or service that the business needs to provide. Newcombe (1999) introduced a view of construction projects as a coalition of powerful individuals and groups, the stakeholders, who are by definition the clients of that specific project.

2.3.5 Safety

Safety is an economic as well as humanitarian concern that requires appropriate management control. Safety and health must be managed in the same way that other aspects of a company are managed (Peterson, 1979). Benefits of safety and health may embrace less injuries, less property damage, less down time, improvement in morale, developed industrial relations, enhanced productivity, reduced cost and improved quality (Promfret, 1997). Additional benefits include less compensation insurance, fewer hidden costs, better supervisor morale, increased efficiency, and improved marketability (Levitt, Samelson, 1995). Hinze and Parker (1978) stated that good safety performance and high productivity are compatible and that safety should not be sacrificed in an attempt to enhance productivity. In identifying factors that influence performance, Chan et al. (2004) identified the implementation of an effective safety programme as a critical success factor of construction projects. Assaf et al. (1996) also identified adherence to safety rules and regulations within such programme as essential.

3. Research methodology

Both primary and secondary data have been utilized in this research. Primary data of this research was obtained directly via a survey, while secondary data was based on different books, journals, reports, and the like. Since the study required the collection of data from a wide range of clients who have experience with local contractors, an online survey was designed and conducted. The survey was designed as a research instrument to examine the levels of client satisfaction as perceived by clients based on consultant performance using a series of satisfaction determinants, as developed in earlier satisfaction assessment models (Parasuraman et al., 1985; Soetanto, Proverbs, 2004; EFQM, 2005). The research sample has been drawn from building construction clients, who had one or more than one building projects completed in the last 15 years to make sure that they have the relevant knowledge and experience to accurately answer the survey.

The survey-making process lasted for three months. Above mentioned surveys were collected in the period of one month and few days, precisely speaking from the 24th of April until the 30th of May, 2017. The surveys were sent to managers of different companies who were clients of some of B&H construction companies. The total number of collected surveys is 165. The survey was consisted of close-ended questions, in which rating questions were asked. Saunders *et al.* (2009) stated that

this type of questions employ the Likert-style rating scale, where participants are supposed to mark one of existing statements. All statements have five levels that illustrate the participants' opinion about it. The research model is developed from a detailed overview of literature review in order to identify the factors and their influence on client satisfaction in construction industry. The model proposed in this study is not an exhaustive one it can be further extended by adding other variables we have not made reference to. The key elements of the model are:

1. Independent Variables (IV)
 - a. Timeliness
 - b. Cost
 - c. Quality
 - d. Client Orientation
 - e. Safety
2. Dependable Variable (DV)
 - a. Client Satisfaction

4. Data analysis and results

4.1 Descriptive statistics

In the first part of the survey, respondents were asked several demographic questions. The following tables show the summarized results obtained from those questions. [Table 4.1](#) shows the gender distribution for the sample. The majority of the respondents surveyed were male (70,3 %) while female respondents occupied a smaller portion compared to them (29,7 %).

Table 4.1. Gender of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	116	70.3	70.3	70.3
	Female	49	29.7	29.7	100.0
	Total	165	100.0	100.0	

In terms of age groups, the respondents aged below 25 comprise 15,8 % of the total, those 25 to 34 years 18,8 %, those 35 to 44 years 32,1 %, and 45 and over groups 33,3 % ([Table 4.2](#)).

Table 4.2. Age of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 25	26	15.8	15.8	15.8
	25-34 years old	31	18.8	18.8	34.5
	35-44 years old	53	32.1	32.1	66.7
	45 and above	55	33.3	33.3	100.0
	Total	165	100.0	100.0	

[Table 4.3](#) shows that about 2,4 % of the respondents were educated up to elementary school and 24,8 % were educated up to high school. The number of respondents attaining higher education included 51,5 % of the respondents were educated up to the undergraduates level. A considerable number (13,3 %) of respondents have completed Master level, and relatively lesser number of them (7,9 %) have a PhD degree.

Table 4.3. Level of Education of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Elementary school	4	2.4	2.4	2.4
	High school	41	24.8	24.8	27.3
	Undergraduate	85	51.5	51.5	78.8
	Master	22	13.3	13.3	92.1
	PhD	13	7.9	7.9	100.0
	Total	165	100.0	100.0	

4.2. Validity of survey questions

Back Translation technique was used in this research as a validation process, where the survey was first translated into Bosnian language, and then translated back into the original English language, by a different person. The objective was to ensure that the original translation is accurate. The term “back translation” is used in survey research literature and in translation studies to refer to the translation of a translation back into the source language (Harkness, 1996). The basic steps involved in this process were as follows:

1. A source text in English language (Source Language Text One, SLT1) was translated into Bosnian language (Target Language Text or TLT).
2. The TLT was translated back into the language of SLT1 by a second translator, unfamiliar with the SLT1 and uninformed that there is an SLT1. This second translation, the back translation, is SLT2.
3. SLT1 was compared to SLT2.
4. Based on the similarities between SLT1 and SLT2, conclusion was drawn that there was a great equivalence between the TLT and the SLT1.

4.3. Reliability assessment

Cronbach's coefficient alpha analysis is the most widely used formula for assessing the internal consistency of measures in marketing research (Peter, 1979). A low coefficient indicates that the sample items have not been able to capture the construct, while a large alpha coefficient indicates that the given item correlates well with the true scores. Cortina (1993) and Kline (1999) have argued that an acceptable value for Cronbach's alpha could reach around and above 0.7 (0.65 to 0.84); values significantly lower than 0.7 indicate an unreliable construct. In this study, Cronbach's alpha is measured for the second and third part of the survey that contains 19 items in total. From the table below we can see that all items are reliable since their Cronbach's alpha coefficients are higher than standard value of 0.70.

Table 4.4. Reliability Test

Variables	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Timeliness	.837	.840	3
Cost	.858	.862	3
Quality	.855	.855	3
Client Orientation	.820	.824	3
Safety	.886	.886	3
Client Satisfaction	.874	.875	4

4.4 Hypothesis Testing

Hypotheses raised in this study are as follows:

H1: Timeliness positively influences client satisfaction with a construction company.

H2: Cost positively influences client satisfaction with a construction company.

- H3:** Quality positively influences client satisfaction with a construction company.
H4: Client orientation positively influences client satisfaction with a construction company.
H5: Safety positively influences client satisfaction with a construction company.

Table 4.5. Regression Testing Hypotheses

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.329	.240		5.528	.000
Time	.179	.086	.203	2.086	.039
Cost	-.020	.094	-.021	-.208	.835
Quality	.248	.104	.260	2.378	.019
Client_Orientation	-.069	.084	-.071	-.820	.413
Safety	.373	.078	.445	4.782	.000

In order to test the hypotheses a Liner Regression method was used. Based on the obtained results the following conclusions are drawn:

From the [Table 4.11](#) we can see that our first independent variable „Timeliness“ has a level of significance 0.039 which is smaller than 0.05. Therefore, we can state that Hypothesis 1 is accepted. In other words, we claim that timeliness factor is positively related to client satisfaction with a construction company.

Second independent variable „Cost“ has a level of significance 0.835 which is higher than 0.05 and we can state that Hypothesis 2 is rejected. In other words, we claim that cost factor is negatively related to client satisfaction with a construction company.

Third independent variable „Quality“ has a level of significance 0.019 which is smaller than 0.05. Therefore, we can state that Hypothesis 3 is accepted. In other words, we claim that quality factor is positively related to client satisfaction with a construction company.

Fourth independent variable „Client orientation“ has a level of significance 0.413 which is higher than 0.05, therefore we can state that Hypothesis 4 is rejected. In other words, we claim that client orientation factor is negatively related to client satisfaction with a construction company.

Fifth independent variable „Safety“ has a level of significance 0.000 which is smaller than 0.05 (<0.05). Therefore, we can state that Hypothesis 5 is accepted. In other words, we claim that safety factor is positively related to client satisfaction with a construction company.

5. Conclusion

The main objective of this study was to identify a comprehensive list of factors for measuring client satisfaction and to study their influence on client satisfaction in the construction industry. Based on the previous similar researches in the context of construction, the following five factors were identified to be the focus of the study. Those factors included timeliness, cost, quality, client orientation and safety at work. Data generated through the client-satisfaction survey was analyzed and certain hypotheses were tested. Out of five hypotheses, three of them were accepted, which indicated that three factors are considered important for client satisfaction, and that they actually have a positive impact on client satisfaction.

The first factor that proved to have positive effects on the clients' satisfaction is timeliness. In the last two decades, the market is characterized with many projects in the private sector where the deadlines play a very important role to the private clients because this actually represents the realization of their ideas. The results indicated that the goal of each client is the fastest possible completion of works. Likewise, the results of the research suggest that companies that want to have satisfied clients must take into account this phenomenon, because in the following period the effectiveness of the planning and scheduling jobs will continue to play a major role in the eyes of clients.

The second factor that showed significant positive effect on clients' satisfaction was cost. The test results showed that the quality factor in construction is essential for each client in terms of

visual appearance, then with regard to fulfilling the clients' needs in the use of the facility, as well as the life safety of people inside the building. Based on the obtained results, contractors are recommended to take into consideration clients' wishes, needs as well as the fears, during the negotiation and the execution of works. Contractors should convince the client that he knows the materials used for the present work, help him in the selection of materials, and share his own experiences related to materials. In addition, the contractor needs to convince the client that the continual supervision is maintained over work execution, and to be aware of quality as an essential dimension of the overall client satisfaction.

The third factor, in addition to timeliness and quality that was found to have an extreme importance to clients' satisfaction is safety. Safety in construction can be accomplished by working in accordance with certain measures and standards. All results from this study suggest that when it comes to health and safety measures and their application, they not only reassure the client, but also significantly improve the image and reputation of the contractor. Contractors are advocated that in order to protect their workers, their own interests as well as clients' interests to perform regular training of employees on work safety, and to introduce a system that guarantees the application of the regulations related to safety. Also, contractors should pay special attention to supply the workplaces or building sites with the necessary equipment and plan on applying safety measures. Contractor, who maintains a safe, clean and organized work environment, reassures the client, is regarded as a reliable partner, and is preferable in the range of clients.

The analysis showed that by failing to accept two hypotheses, the conclusion drawn is that not all client-satisfaction factors are perceived to be equally important by the clients. Specifically, two of the client-satisfaction factors, cost and client orientation, showed significant differences. Regarding cost, we assume that this factor is not considered unimportant, but that the respondents evaluated it in this way because many of them during the planning phase, preparation of project documentation and contracting of works phase, do not have a clear vision of all the works and materials that will be needed. Therefore, clients partially change their ideas and decisions in terms of material selection during the execution of works. It can be concluded that the majority of clients, when it comes to the selection of materials, give more importance to their wishes, than to keep it within the agreed budget. Lastly, results showed that the relationship between the contractors and the client does not belong to the forefront of the decisive factors. One of the reasons why respondents consider this factor important but not crucial, is that clients maybe consult engineering companies for professional advising when it comes to gathering the necessary documentation, rather than consulting construction companies.

Although the findings of the study contribute to the body of knowledge, there are certain limitations of the study. Firstly, the study has focused on the clients of the construction industry in B&H and this restricts the generalization of the study. Also, a model of the clients' satisfaction developed in the thesis contains five factors taken for the purpose of the study. There may be several other factors that may have impact on clients' satisfaction, and hence this lead to another limitation of the study. If there are future researches to come, the research researcher can use qualitative methods to have a better understanding customer satisfaction, since this research was only based on quantitative method. Similarly, it would be interesting if others dimensions are also added in the future researches except for the ones used in this research, or if different situational and control variables are used in future research.

Even though the above mentioned findings are based on input from the B&H construction market, we believe that the contractor firms in other countries, who specialize in building works for private sector may also benefit from the findings or at least the approach of this research as well. Though it needs to be remembered that the configurations that are the outcome of this research can only serve as one aspect in enhancing the understanding of the factors related to clients' satisfaction.

References

- Ahmed, Kangari, 1995 – Ahmed, S.M., Kangari R. (1995). Analysis of Client-Satisfaction Factors in Construction Industry. *Journal of Management in Engineering*, Vol. 11, No. 2, pp. 36-42.
- Ashley, 1987 – Ashley, D.B., Lurie, C.S. and Jaselskis, E.J. (1987). Determinants of construction project success, *Project Management Journal*, Vol. XVII No. 2, pp. 69-79.

- Ashworth, 1994 – Ashworth, A. (1994). Cost studies of buildings. Essex: Longman Group Limited.
- Assaf et al., 1996 – Assaf, S.A., Al-Hammad, A.M., Ubaid, A. (1996) Factors effecting construction contractors' performance, *Building Research and Information*, 24 (3), 159-163.
- Azhar et al., 2008 – Azhar, N., Rizwan U. Farooqui, Ahmed, S.M. (2008). Cost overrun factors in construction industry of Pakistan. *Advancing and Integrating Construction Education, Reseach & Practice*, 499-508.
- Banwell, 1964 – Banwell, G.H. (1964). The Placing and Management of Contracts for Building and Civil Engineering Work, HMSO, London.
- Bertelsen, 2004 – Bertelsen, S. (2004). Lean Construction: Where are we and how to proceed? *Lean Construction Journal*. Vol.1, pp. 46-69.
- Bresnen, Haslam, 1991 – Bresnen, M.J., Haslam, C.O. (1991). Construction industry clients: a survey of their attributes and project management practices. *Construction Management and Economics*, Vol. 9, pp. 327-42.
- Burns, Bush, 2006 – Burns, A., Bush, R. (2006). Marketing Research, 5th ed., Pearson Prentice-Hall, New York, NY.
- Chan, Chan, 2004 – Chan A. P. C., Chan, A. P. L. (2004). Key performance indicators for measuring construction success. *Benchmarking: An International Journal*, 11(2), 203-221.
- Chan et al., 2004 – Chan, A. P. C., Scott, D., Chan, A. P. L. (2004). Factors Affecting the Success of a Construction Project. *Journal of Construction Engineering and Management*, 130 (1), 153-155.
- Cheng et al., 2006 – Cheng, J., Proverbs, D. and Oduoza, C. (2006). The satisfaction levels of UK construction clients based on the performance of consultants: results of a case study. *Engineering Construction and Architectural Management*, Vol 13, No.6, pp567-583. ISSN 0969-9988.
- Churchill, Serprenant, 1982 – Churchill, G.A., Serprenant, C. (1982). An investigation into the determinants of consumer satisfaction. *The Journal of Marketing Research*, Vol. 19, pp. 491-504.
- Copare, 1992 – Copare, P.B. (1992). Planning your construction services. Transactions of the American Association of Cost Engineers, American Association of Cost Engineers, Morgantown.
- Cortina, 1993 – Cortina J. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, 78, 98–104.
- Delgado, Aspinwall, 2005 – Delgado D. J., Aspinwall A.M. (2005). Improvement tools in the UK construction industry. *Construction Management and Economics*, Vol. 23 Issue 9, pp. 965.
- De Vaus, D.A. (1994), *Surveys in Social Research*, 3rd ed., UCL Press, Guildford.
- Dysert, 2006 – Dysert, L. R. (2006). Is "estimate accuracy" an oxymoron? *AACE International Transactions*, s.l.: ESTO1.1 - 01.5
- EFQM – EFQM (2005). European Forum for Quality Management, available at: <http://www.efqm.org/> (accessed 17 January 2017).
- Egan, 2002 – Egan, J. (2002), *Accelerating Change*, Construction Industry Council, London.
- Egan, 1998 – Egan, J. (1998). *Rethinking Construction*, Department of the Environment, Transport and the Regions, London.
- Fornell et al., 1996 – Fornell, C., Johnson, M.D., Anderson, E.W., Cha, J. and Bryant, B.E. (1996). The American customer satisfaction index: nature, purpose, and findings. *Journal of Marketing*, Vol. 60, pp. 7-18.
- Gido, Clements, 2003 – Gido, J., Clements, J.P. (2003). *Successful project management*. New York: South-Western.
- Harkness, 1996 – Harkness, J.A. (1996). Thinking Aloud about Survey Translation. Paper presented at the International Sociological Association Conference on Social Science Methodology, Colchester.
- Harris, McCaffer, 2001 – Harris, F., McCaffer, R. (2001). *Modern Construction Management*. 5th ed. London: Blackwell Publishing
- Hinze, Parker, 1978 – Hinze, H., Parker, H. (1978). Safety: productivity and job pressures. *Journal of construction Division*, ASCE, Vol. 104, No. 2. pp. 241-249.
- Kärnä, 2004 – Kärnä, S., Junnonen J.M., Kankainen J. (2004). *Customer Satisfaction in Construction*, 12 p.

- [Kerzner, 2003](#) – Kerzner, H. (2003). Project Management A Systems Approach to Planning, Scheduling, and Controlling. John Wiley and Sons Inc., New Jersey.
- [Kline, 1999](#) – Kline P. (1999). The Handbook of Psychological Testing. Routledge, London.
- [Latham, 1994](#) – Latham, M. (1994). Constructing the Team, HMSO, Department of Environment, London.
- [Latham, 1994](#) – Latham, M (1994). *Constructing the Team: Final Report of the Government/Industry Review of Procurement and Contractual Arrangements in the UK Construction Industry*, HMSO, London.
- [Lester, 2000](#) – Lester, A. (2000). Project Planning and Control. Butterworth Heinemann, Oxford.
- [Levitt, Samelson, 1995](#) – Levitt, R.E., Samelson, N.M. (1995) Construction safety management, John Wiley & Sons Inc. New York.
- [Locke, 1970](#) – Locke, E.A. (1970). Job satisfaction and job performance: a theoretical analysis. *Organizational Behavior and Human Performance*, Vol. 5, pp. 484-500.
- [Love et al., 2000](#) – Love, P., Smith, J., Treloar, G. and Li, H. (2000). Some empirical observations of service quality in construction. *Engineering, Construction and Architectural Management*, Vol. 7 No. 2, pp. 191-201.
- [Maloney, 2002](#) – Maloney, W.F. (2002). Construction product/service and customer satisfaction. *Journal of Construction Engineering and Management*, November/December, pp. 522-529.
- [Marjuki, 2006](#) – Marjuki, M. (2006). Computerized building cost estimating system, Malaysia: University Teknologi Malaysia.
- [Merrit et al., 1996](#) – Merrit, F.S., Loftin, M.K., & Ricketts, J.T. (1996). Standard handbook for civil engineers (4th ed.). New York: McGraw Hill.
- [National Economic..., 1983](#) – National Economic Development Office (N.E.D.O.) (1983). *Faster Building for Industry*. Her Majesty's Stationery Office, London.
- [Naumann, Giel, 1995](#) – Naumann, E., Giel, K. (1995). Customer satisfaction measurement and management: using the voice of the customer. International Thomson Publishing, USA.
- [Newcombe, 1999](#) – Newcombe, R. (1999). From client to project stakeholders: a stakeholder mapping approach. Proceedings of the CIB W55 and W65 Joint Triennial Symposium, pp. 57-67, Cape Town, Republic of South Africa, 5-10 September.
- [Nicholas, 2001](#) – Nicholas, J. (2001). Project Management for Business and Technology. Prentice Hall, New Jersey.
- [Oliver, 1981](#) – Oliver, R.L. (1981). Measurement and evaluation of satisfaction process in retail setting. *Journal of Retailing*, Vol. 57, pp. 25-48.
- [Parasuraman et al., 1985](#) – Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, Vol. 49 No. 4, pp. 41-50.
- [Peter, 1979](#) – Peter, J. Paul (1979), "Reliability: A Review of Psychometric Basics and Recent Marketing Practices," *Journal of Marketing Research*, 16 (February), 6-17.
- [Peterson, 1979](#) – Peterson, D. (1979). The OSHA compliance manual, McGraw Hill Book Co., Inc., New York.
- [Promfret, 1997](#) – Promfret, B. (1997) Psychology of safety, National safety. pp. 14-15.
- [Raftery et al., 1998](#) – Raftery, J., Pasadilla, B., Chang, Y.H., Hui, E.C.M. and Tang, B.S. (1998). Globalization and construction industry development: implications for recent developments in the construction sector in Asia. *Construction Management and Economics*, 16, 729-37.
- [Rußig et al., 1996](#) – Rußig, V., Deutsch, S., Spillner, A. (1996). Branchenbild Bauwirtschaft: Entwicklung und Lage des Baugewerbes sowie Einflussgrößen und Perspektiven der Bautätigkeit in Deutschland, Ducker&Humboldt: Berlin-München.
- [Siu et al., 2001](#) – Siu, K.W., Bridge, A. and Skitmore, M. (2001). Assessing the service quality of building maintenance providers: mechanical and engineering services. *Construction Management and Economics*, Vol. 19, pp. 719-26.
- [Smith et al., 1969](#) – Smith, P.C., Kendall, L.M. and Hulin, C.L. (1969). The Measurement of Satisfaction in Work and Retirement: A Strategy for the Study of Attitudes, Rand McNally & Company, Chicago.

Soetanto, Proverbs, 2004 – Soetanto, R., Proverbs, D.G. (2004), Intelligent models for predicting levels of client satisfaction. *Journal of Construction Research*, Vol. 5 No. 2, pp. 233-55.

Statistic Agency B&H, 2014 – Statistic Agency B&H (2014). Construction works in 2013, November.

Stewart, 1991 – Stewart, R. D. (1991). Cost Estimating. 2nd ed. New York: John Wiley & Sons, Inc.

Šehanović, 2008 – Šehanović S. (2008). Uticaj imidža na poslovanje građevinskih preduzeća u Bosni i Hercegovini, Master thesis, Univerzitet u Tuzli, Filozofski fakultet.

Tan, Abdul-Rahman, 2005 – Tan, C. K., & Abdul-Rahman, H. (2005). Preliminary Research into Overcoming Implementation Problems in Construction Projects. Proceeding of the 4th Micra Conference. Faculty of the Built Environment, University Malaya, 08.15-08.28

Willis et al., 2012 – Willis, P.G., Brown, K.A. & Prussia, G.E. (2012). Does employee safety influence customer satisfaction? Evidence from the electric utility industry. *Journal of Safety Research*, Vol. 43, No. 5-6, pp. 389-396.

Woodruff, 1997 – Woodruff, R.B. (1997). Customer value: the next source for competitive advantage”, *Journal of the Academy of Marketing Sciences*, Vol. 25 No. 2, pp. 139-53.

Yasamis et al., 2002 – Yasamis, F., D. Arditi and J. Mohammadi (2002). Assessing contractor quality performance. *Construction Management and Economics* 20, pp. 211-223.