Perceived Service Quality of Architectural Consultancy Firms and Client Satisfaction in Building Projects in Nigeria

Abstract

Purpose: Clients in Nigeria have continuously questioned the quality of services being rendered by architectural firms in building projects. This study investigates the areas of service responsible for determining client satisfaction.

Methodology: The study employs questionnaire for data collection on perceived service quality and indicators of clients' satisfaction.

Findings: The results of descriptive statistics suggest that efficient analysis and compliance with client brief along with buildability, flexibility and comprehensiveness of the design are the main technical determinants of clients' satisfaction. Management measures for engendering clients' satisfaction include team communication and collaboration as well as regular site visits when required. The study established a significant relationship between the perceived service quality and client satisfaction. At technical level, economical design and compliance with budget, buildability, optimal and error-free design, and timely delivery have significant correlation with the perception of service quality, which could engender client satisfaction. At management level, collaboration and coordination, integrity and trust, regular site, project management knowledge and skills had significant relationships with perceived service quality.

Implications: To improve overall client satisfaction, architects are expected to focus on these factors in the process of service delivery. Architects' expertise and skills can be further harnessed through continuous training and understanding of the project environment.

Keywords: Architectural firms, Building projects, Technical factors, Management factors, Service Quality.

1.0. Introduction

The concept of service quality has become a major area of attention for business managers, researchers and practitioners over the years (Angelova, 2011), because it has a strong impact on organisational performance, client satisfaction, client loyalty and profitability (Siddiqi, 2011). The knowledge base through this area provides a direction on how to explore or modify the existing service quality concepts (Seth and Deshmukh, 2005). Ling and Chong (2004) emphasise the core value of services as its uniqueness and the process involved. Therefore, the superior service quality reinforces the competitiveness of an organisation and enhances efficiency.

Companies use service quality to differentiate their products and services from those of their competitors. Technical quality considers if service meets client expectations while functional quality measures the perception of the client about the production and delivery of the service (Razavi et al., 2012). Performance refers to the client's evaluation of the service provider, ensuring service quality is meeting or exceeding the expectations from the service (Ismail, Othman & Amat, 2012). Other important elements of service quality are corporate image and reputation. These measures of service quality are indicators of client satisfaction (Vincent, William & Godwin, 2008).

In the findings of Sunindijo et al., (2014), service quality is an important factor that affects client satisfaction and behaviours, which serves as indicators of business success in the construction sector. Such client behaviours include word-of-mouth, re-purchase intention, feedback, that could be positive or negative, and the willingness to pay for services (Grierson & Brennan, 2017). The study of Tabaku and Cerri (2016) concludes that the perceived quality of the customer has a significant effect on the creation of client satisfaction. According to a wide range of literature, the benefits of enhanced service quality include increased client satisfaction, client retention, positive word of mouth, reduced staff turnover, enlarge market share, increased profitability and improved financial performance (Singh & Khanduja, 2010; Daniel & Berinyuy, 2010; Adat & Noel, 2014).

According to Hoxley (2000), the service quality (SERVQUAL) model with some adaptations has been used in several service industries, including hotels, travel, higher education, accountancy, hospitals and construction services. Keltinger et al. (2009) equally

reiterate that ServQual instrument had been widely utilized by practitioners and academics to assess client's perceptions of service quality in banks, information technology, repair and maintenance companies. Aga and Safakli (2007) also used the ServQual instrument to measure service quality and client satisfaction in professional accounting firms. Ismail et al. (2012) also examined contractors' service quality performance and client satisfaction in higher institutions of learning in Malaysia using the five service quality determinants of ServQual.

Despite that the measurements of service quality are essential to providing information on the efficiency and effectiveness of the service provider (Azmy, 2012), as it allows the service provider to focus on the important areas and if their activities are in line with the project objectives, less attention has been paid to the determinants of service quality in the construction industry. In Nigeria, where many clients have continuously questioned the quality of services being rendered by Architectural firms in building projects (Oyedele et al., 2015), there is a paucity of studies that investigate the concepts from the clients' perspectives. Based on the lack of empirical study that explore the link between the factors of design quality as instrument of client satisfaction, this study focuses on gaining insights into the areas of service responsible for enhancing clients' satisfaction. The study fulfils its aim through the following objectives:

(1) To investigate the key technical and managerial factors determining client satisfaction with architectural service delivery.
(2) To evaluate the relationship between perceived service quality of architectural consultancy firms and client satisfaction.

The study employs quantitative questionnaire, which was analysed using descriptive statistics and correlation analysis, as a means of data collection. The subsequent sections of the paper present a review of extant literature and research method, which explains and justify the approach to the study. Findings and discussion of the study are then presented before culminating in a conclusion section.

2.0. Measuring Client Satisfaction with Architectural Services

Despite the wide adaptation and usage of SERVQUAL in client assessment, studies are emerging that the technical quality or design quality should be included in the measurement of client satisfaction in the construction services sector (Duljevic and Poturak, 2017). This is especially as the usual focus of projects within the AEC industry is to enhance project productivity, mainly in terms of time, cost and quality, which are assumed to be the measures to satisfy clients. As a result, studies often neglect the needs to investigate the measures that could engender client satisfaction, which are essential in the procurement of future projects (Durdyev et al., 2018). However, evidence suggests that there are various subjective and objective preferences that could influence the perception of service quality beyond the traditional metrics for evaluating project performance (Aliakbarlou et al., 2017). With the perception of service quality being capable of competing with the more obvious criteria, among which are the product needs and price, service quality is a key driver of customer satisfaction (Forsythe, 2016).

Albeit being few, some studies have investigated the concepts of service quality and customer satisfaction in the construction industry. For instance, Tang et al. (2003) recommend service quality, product quality and relationship quality in the measurement of customer satisfaction within the AEC industry. According to Oluwatayo et al. (2014), the concept of service quality refers to value of service process to the client; product quality is the value of the design output, while relationship quality refers to the quality of attitude of service providers. Nzekwe-Excel (2007) specifically mentioned design quality to include schedule, budget and technical specifications as client satisfaction dimensions. Oyedele and Tham (2007) also identify technical specifications, buildability, project communication as measures of client satisfaction.

Amos-Abanyie et al. (2014) argue that competence remains an important factor for evaluating the quality of professional services. Specifically, in construction services consulting, client regards competencies and experience as very significant factors that relate to the actual service quality in meeting their satisfaction. This often influences clients' decision in team selection for future projects. As a result, many studies conclude that understanding and enhancing competencies for effective job performance is essential for meeting project goals (Shet et al., 2019; Ajayi et al., 2016), which, in turn, is essential for driving the clients' perception of service quality (Hussain et al., 2019). In line with this,

Kwofie et al. (2016) confirmed that design and management skills remain the tenet of construction professional service firms and should constitute major factors of client satisfaction. Leadership and professional ethics are equally required in construction and engineering consultancy services, according to Abdul-Rahman et al. (2014).

The principal task of an architect is to provide a wide range of services such as design, construction, renovation and project management depending on the procurement route for the project (Oluwatayo, *et al*. 2014). The performance criteria of an architect are those used to measure his services based on the views of the employer. Nkado and Mbachu (2001) used design flexibility, economic design, buildability of design and error-free detailing as variables to measure technical skill while Soetanto (2002) employed quality of design, compliance with budget, compliance with requirements as parameters for measuring the performance of architectural design services. Odusami (2002) summarises these parameters as technical skills. These measurement variables are similar to that of Mbachu and Nkado (2006), Oyedele and Tham (2007) and Gyadu-Asiedu (2009) as shown in Table I.

The roles and tasks expected of an architect in design and management of projects require sound professional knowledge, skills and promotion of sound decision and judgment in constructions project delivery, and often involve conflict resolution skills among team participants (Kwofie et al., 2016). These functions are very central and critical to the success of the project across all the phases of the project life cycle both professionally and contractually (Azmy, 2012; RIBA, 2013). Lately, there has been some considerations regarding what the future roles of architects in the increasingly evolving construction industry will be, especially with the digitalization and modernization of the construction industry. For instance, Sadoughi et al. (2020) investigated the roles of architects in facilitating modern methods of construction through their leadership and coordination responsibilities in designing for the offsite construction. Architects' roles in facilitating sustainable construction, buildability and waste minimization, among others, have been well explored (Olanrewaju and Ogunmakinde, 2020; Ajayi et al., 2017; Feria and Amado, 2019).

The management skills of Architects have a considerable influence on project performance. Harding (1999) confirmed that when the design process is not managed effectively, it results in late and/or inaccurate design information. This in effect causes delays and client dissatisfaction. Mbachu and Nkado, (2006), Oyedele and Tham (2007) and Gyadu-Asiedu

(2009) variously use detailed and comprehensive delivery, efficient performance to terms and conditions, project communication, client focus, efficient supervision and delivery within time as measures of such management skills, which are all essential to enhancing the perception of service quality and client satisfaction.

Oyedele and Tham (2005) opine that managerial skills for architects should be incorporated into their training. It gives added advantage to successful project delivery because many participants of diverse background need to work together in a well-organised team. Chow and Ng (2005) emphasise teamwork, regular site visits to attend to problems, communication with other members of the team, interpersonal skills, time management, the willingness to involve the client and contractor at all stages., relationship with the client and other consultants, and problem-solving/avoidance ability as important managerial skills for effective architects' job performance. The study of Amos-Abanyie *et al*. (2014) categorises the competencies required for architects into design competencies and management competencies. It further reinforces that the architect is expected to possess an acceptable standard of professionalism, skills and attitudes, which are important for his task in the built environment (Kwofie *et al.,* 2016). In this study, the criteria for measuring client satisfaction with Architectural services are categorised into technical indicators and management indicators. Table 1 below shows the summary of the indicators.

Table 1. Criteria for measuring client satisfaction with Architectural services in previous studies

Label	Criteria identified in previous studies	References
	Technical	
TC1	Efficient analysis and response to a client brief	Windapo and Cloete (2017); Kama and Junnonen, (2017).
TC2	Design flexibility	Mbachu and Nkado, (2006); Gyadu-Asiedu, (2009).
TC3	Compliance with client's requirements	Kwofie, Amos-Abanyie and Afram, (2016); Kama and Junnonen, (2017).
TC4	Economical design/compliance with budget	Soetanto, (2002); Mbachu and Nkado, (2006)
TC5	Buildability of designs	Oyedele and Tham (2005); Oyedele and Tham (2007); Gyadu-Asiedu, (2009).
TC6	Optimal and error-free design	Soetanto, (2002); Oyedele and Tham (2007); Kama and Junnonen, (2017)
TC7	Detailed and comprehensiveness of designs	Amos-Abanyie, Botchway, and Kwofie,(2014); Oluwatayo, Ibem and Amole (2014);

TC8	Aesthetic appeal	Mbachu and Nkado (2006); Gyadu-Asiedu, (2009).
TC9	Delivery within time	Gyadu-Asiedu, (2009)
TC10	Compliance with statutory requirements	Soetanto, (2002); Kama and Junnonen, (2017).
	Management	
MC1	Collaboration and co-ordination	Kama and Junnonen, (2017); Oyedele and Tham, (2007); Tan (2012)
MC2	Integrity and trust	Soetanto, (2002); Oyedele and Tham (2007); Tan (2012)
MC3	Regular site visits to attend to problems	Chow and Ng (2005), Kwofie, Amos-Abanyie and Afram, (2016).
MC4	Communication of designs with other members of the team.	Chow and Ng (2005); Gyadu-Asiedu, (2009); Cheng, Proverbs and Oduzua, (2006).
MC5	Negotiation and conflict resolution skills	Yean (2003); Kwofie, Amos-Abanyie and Afram, (2016)
MC6	Project management knowledge and skills	Soetanto,(2002); Odusami (2003), Tan (2012); Amos-Abanyie, Botchway, and Kwofie, (2014
MC7	Leadership, motivation and listening ability	Odusami (2002); Kama and Junnonen, (2017).

As shown in Table I, efficient analysis, delivery within time, efficient supervision, compliance with client and statutory requirements, negotiation and conflict resolution skills, leadership, motivation and listening ability were used in some of the studies, while design flexibility and economical design/compliance with budget constitute the technical and management indicators. However, most of these studies were done outside Nigeria except Odusami (2002), Oyedele and Tham (2005), Oyedele and Tham (2007) and Oluwatayo *et al.,* (2014).

2.1. Theoretical Framework

Cronin and Taylor (1992) used a performance-only model to investigate the measurement of service quality and its relationship with client satisfaction and purchase intentions. This model known as perception model (SERVPERF) was developed as a response to criticism of SERVQUAL model. The model illustrates that service quality is about clients' attitude. Therefore performance-only is an enhanced means of measuring service quality. The model concludes that 'Performance' instead of 'Performance – Expectation' determines service quality.

The SERVPERF model is based on performance only, and equally uses only the perceived generic factors of tangibles, reliability, responsibility, assurance and empathy. Studies

(Gounaris, 2005; Gupta and Singh, 2017) have shown that SERVPERF indicates superiority in terms of reliability, convergent and discriminant validity and have received considerable support for better results. These studies reviewed difficulties associated with the SERVQUAL measurement tool and established that perception component of SERVQUAL performs better as a predictor of perceived overall quality than the difference score itself (Keuper, 2011; Tabaku & Cerri, 2016). This model is adopted in this study as it is capable of establishing a quantitative relationship between service quality and client satisfaction.

2.2. Hypothesis of the Study

In order to evaluate client satisfaction with the services of architectural firms, a research hypothesis was postulated. The hypothesis (H_0) states that there is no significant relationship between perceived service quality and client satisfaction with the professional services of Architectural consultancy firms. This was to ascertain the total effect of dimensions of service quality on the performance of the Architectural firms.

3.0. Research Method

The study adopted a quantitative data collection and analysis to achieve its objectives, as the approach allows the researcher to reach out to a large audience than it would have been for a qualitative study. A well-structured questionnaire was used to elicit responses and opinions of respondents. Since the study seeks to evaluate the perception of architects and their service delivery from clients' perspective, the population of the study consists of clients' representatives in charge of the building projects in which architectural firms have participated. Figure 1 illustrates the methodological approaches to the study.
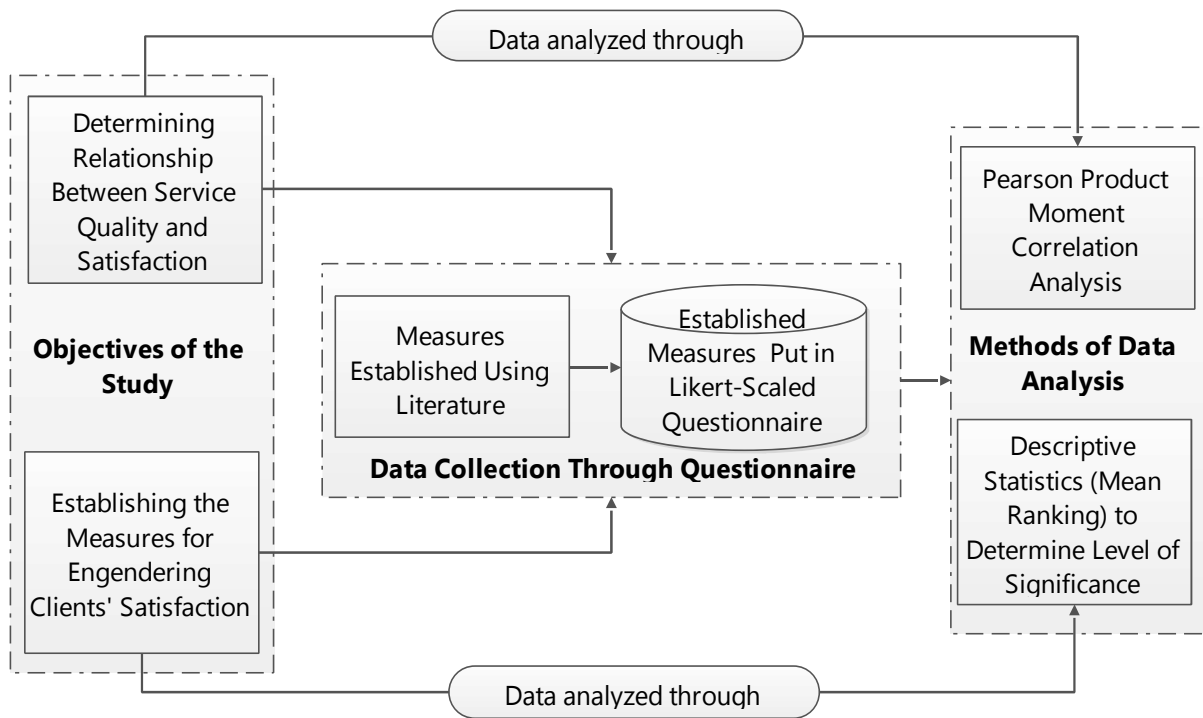
Figure I: Methodological Approach to the Study

3.1. Data Collection and Sampling

Ninety-six (96) building projects of clients were selected to study the clients' perception of architectural services. Using purposive sampling to select the case studies of the buildings ensures that the respondents are currently involved in the on-going construction project of the client. The clients' representatives constituted the study sample. The questionnaire targeted 385 respondents in the client organizations. A follow-up was done through regular phone calls and 335 responses were received. Perceptions on levels of satisfaction with performance variables were measured using 5-point Likert scale, where 1=Poor, 2=Fair, 3=Average, 4= High and 5=Very High. The perceived service quality was measured using 5-point Likert scale, using 1=Poor, 2=Fair, 3=Average, 4= Good and 5=Very Good.

3.2. Data Analysis

Two levels of analysis were carried out in the study. The Mean Scores for the criteria were calculated and ranked appropriately to determine the key measures and practices that engender clients' satisfaction with architectural services. Use of mean score to determine attractive factors in adopting the use of Public Private Partnership have been carried out by

Cheung et al. (2010). This was done using responses received from the respondents based on five-point Likert scale, thus providing the metrics for ranking the variables of client satisfaction.

Pearson Product Moment correlation analysis was also carried out to determine the relationship between the perceived service quality and the variables of client satisfaction. This was done using the variables of both technical and management indicators of client satisfaction. The relationship was established using p-value less or equal to 0.05. According to Field (2009), when the p is less than 0.05, the relationship is established, but rejected when the value is greater than 0.05. Thus, an established relationship implies that the indicator has the potential for enhancing the perception of service quality, irrespective of its impacts on clients' satisfaction.

3.2.1. Ranking of the Criteria for Measuring Client Satisfaction

The ranking in order of significance was used as a basis for determining the factors influencing clients' satisfaction. This is shown in table II below. Using mean ranking as a measure of significance, the top five ranked technical criteria are efficient analysis and response to a client brief, buildability of designs, compliance with client's requirements, design flexibility and, detailed and comprehensiveness of designs. The top management criteria influencing client satisfaction are communication of designs with other members of the team, regular site visits to attend to problems, collaboration and co-ordination, leadership, motivation and listening ability, and, project management knowledge and skills.

Table 2: Ranking of the Criteria for Measuring Client Satisfaction

Label	Variables	Mean	SD	RANK
	Technical indicators of client satisfaction			
TC1	Efficient analysis and response to a client brief	3.83	.759	1
TC5	Buildability of designs	3.83	.860	1
TC3	Compliance with client's requirements	3.73	.935	3
TC2	Design flexibility	3.66	.764	4
TC7	Detailed and comprehensiveness of designs	3.64	.937	5
TC6	Optimal and error-free design	3.62	.606	6
TC8	Aesthetic appeal	3.53	.773	7
T10	Compliance with statutory requirements	3.48	.833	8
TC4	Economical design/ compliance with budget	3.26	.952	9
TC9	Delivery within time	3.18	1.043	10
	Management indicators of client satisfaction			

MC4	Communication of designs with other members of the team	4.03	.872	1
MC3	Regular site visits to attend to problems	3.87	1.131	2
MC1	Collaboration and co-ordination	3.84	.799	3
MC7	Leadership, motivation and listening ability	3.58	.822	4
MC6	Project management knowledge and skills	3.57	.878	5
MC2	Integrity and trust	3.33	.932	6
MC5	Negotiation and conflict resolution skills	2.91	.724	7

3.2.2. Relationship between the perceived service quality of Architectural consultancy firms and client satisfaction.

The relationship between the perceived service quality of architectural firms and client satisfaction was investigated. Hypothesis was formulated for the purpose of the investigation. The hypothesis states that there is no significant relationship between the perceived service quality of by Architectural firms and client satisfaction. The hypothesis was tested using Pearson Product Moment correlation test at $p \leq 0.05$. The rule for the rejection of the hypothesis is when the p-value is < or equal to 0.05, but when p-value is > 0.05, the test accepts the hypothesis. The result of the test of the hypothesis is presented in the Table III below.

Table III: Results of Pearson Product Moment correlation test for relationships between perceived service quality of Architectural consultancy firms and client satisfaction

Variables Correlated	R-value	p-value
Perceived Service Quality		
Technical indicators of client satisfaction		
Efficient analysis and response to a client brief	.084	.126
Design flexibility	.087	.110
Compliance with client's requirements	.089	.104
Economical design/ compliance with budget	**.108***	**.050**
Buildability of designs	**.127***	**.020**
Optimal and error-free design	**.215****	**.001**
Detailed and comprehensiveness of Designs	.097	.077
Aesthetic appeal	.082	.132
Delivery within time	**.180****	**.001**
Compliance with statutory requirements	.097	.077
Management indicators of client satisfaction		

Collaboration and co-ordination	**.152****	**.005**
Integrity and trust	**.132****	**.016**
Regular site visits to attend to problems	**.150****	**.006**
Communication with other members of the team	.001	.990
Negotiation and conflict resolution skills	.074	.181
Project management knowledge and skills	**.108***	**.049**
Leadership, motivation and listening ability	.094	.086

*Correlation is significant at the 0.05 level (2-tailed). Correlation is significant at the 0.01 level (2-tailed) r-correlation value, $p \leq 0.05$

4.0. Discussion of Findings

In line with the aim and objectives, findings of the study as illustrated in the Figure II, covering the determinants of clients' satisfaction as well as the relationship between perceived service quality and client satisfaction are discussed in this section.
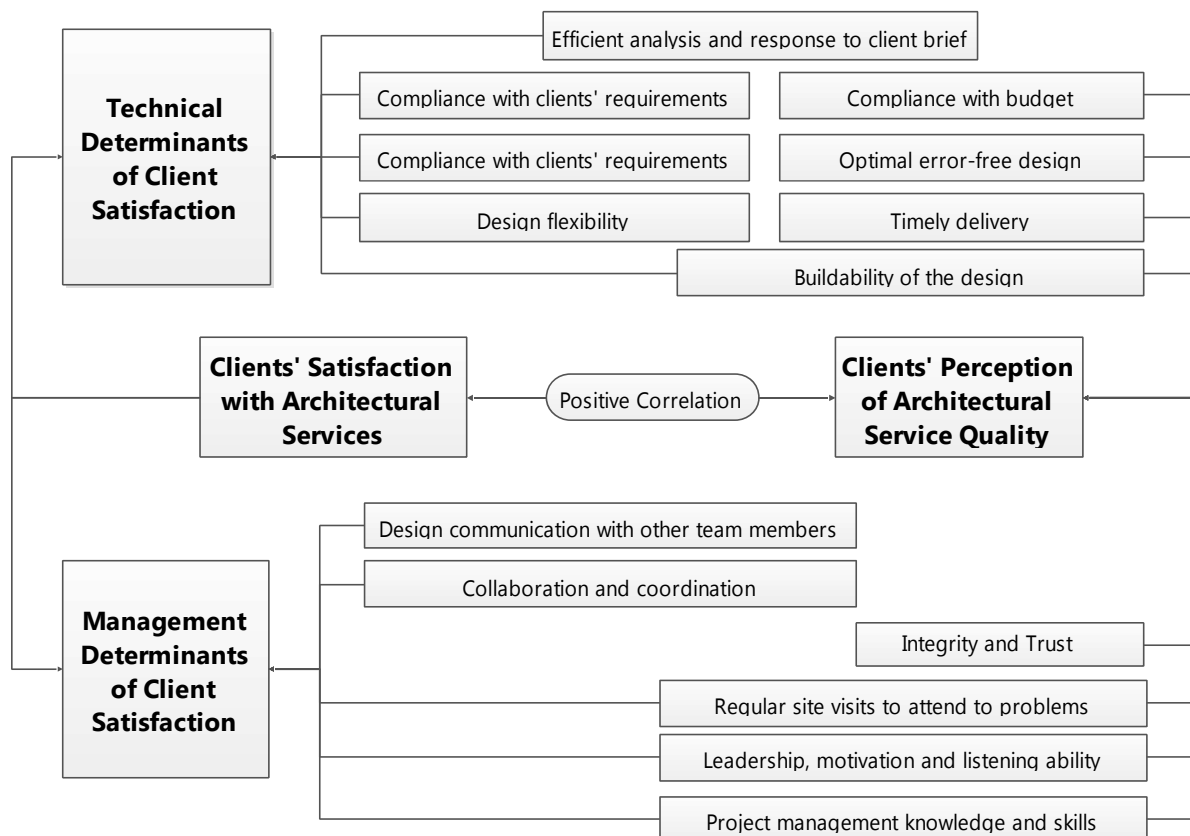

Figure II: Measures for Engendering Client Satisfaction with Architectural Services in Nigeria

4.1. Key Determinants of Clients' Satisfaction with Architectural Services

The results of this study show the importance of the technical and management factors of client satisfaction with the professional service of architectural organisations. The top factors are discussed in this section.

4.1.1. Technical Determinants of Client Satisfaction

Efficient analysis and response to client's brief was ranked as the most important technical indicator of client satisfaction, implying that once an architect designs in line with the brief given by the client, they are likely to satisfy the client. The significance of these factor is further buttressed by the third ranked factor, which is compliance with client's requirements. Clients usually give instructions to architects in forms of brief, which outlines and communicates their wants and needs with the architects (Emmitt, 2014)). In some instances, the brief remains sketchy at the onset, and many clients are opened to the professional advice from the architectural firms. In such case, all the clients are usually able to tell the designer is the number of bedrooms for a residential building, whether they are ensuite bedrooms or not, and a general description of the physical appearance of the buildings. As such, client satisfaction will be largely driven by the architects' instincts in combining both functions and forms. The finding of this study aligns with a previous study carried out by Oluwatayo et al. (2018) which suggests that the client satisfaction with architectural service is mainly driven by the attainment of design requirements as the most important factor.

Another essential technical determinant of the clients' satisfaction is the buildability of the design, which is an important design quality indicator (Minato, 2003) that describes the extent to which the design of a building facilitates its ease of construction (Lam et al., 2006). A design with buildability challenges is likely to result in design change, rework or substantial waste generation, which in turn will have impacts on both cost and time used for project delivery (Lam and Wong, 2008; Ajayi et al., 2015). This concept is not only important from clients' perspective, buildability of the design is an important professional competence expected of a designer (Lam et al., 2006; Ajayi et al., 2016). Thus, designers' competences could significantly enable repeat client patronage, as they enhance perceived quality and satisfaction with service delivery

Design flexibility, and detailed and comprehensiveness of design, were also found to be important factors to engender clients' satisfaction with architectural services. Design for

flexibility provides the opportunities for space adaptation for different use types, which implies that clients can tailor the use of the spaces for many purposes (Habraken, 2008). It can also imply the ease of construction, flexibility in the use of materials and potential for space re-organisation during and after project completion (Ajayi et al., 2017). Significance of this is that clients can make their buildings multifunctional, especially in the case of non-residential buildings or change the building use type with minimal cost implications for such change of use. Detailed and comprehensiveness of the design, on the other hand, implies that the clients have a good visual picture of the proposed building right from the design stage while also easing the process of building construction for the site team. This will, in turn, prevent information loss as well as other errors and reworks, all of which will have cost and time implications for process delivery (Sunday and Afolarin, 2013).

4.1.2. **Management indicators of client satisfaction**

The main management factors that are found to be capable of engendering clients' satisfaction with architectural services include design communication with other project team members, regular site visits to attend to problems and collaboration with other parties, which are essential to construction project performance. For instance, the main motivation behind Building Information Modelling (BIM), which is increasingly becoming the global approach to construction project delivery is to facilitate project collaboration and coordination with other project stakeholders (Crowther et al., 2019). The finding implies that in addition to project collaboration being an effective measure for preventing information loss, errors, reworks and potential project delays, it is also an effective approach for facilitating clients' satisfaction with architectural services. An effective coordination, collaboration and communication with the project team will also ensure that the designers have up to date information about ongoing site activities, thereby ensuring that they visit construction sites to attend to problems where required. This, therefore, ensures that they perform another service that can further engender clients' satisfaction.

4.2. Relationship Between Perceived Service Quality and Client Satisfaction.

This study established the significance of relationship between the perceived service quality and client satisfaction. Previous studies (Tang, 2003; Nzekwe-Excel, 2007, Oluwatayo et al., 2014) have pointed out that design quality can be used to determine client satisfaction in the building industry, other than the traditional measure obtainable in the consumer goods

industry. Oluwatayo et al., (2014) emphasized that factors of personality of the architect, quality of project, value of project, personalization of service, experience and confidence inspired by the architect are very significant in determining client satisfaction. In the present study, four out of ten technical factors were found to be significant. These are economical design and compliance with budget, buildability of designs, optimal and error free design, and delivery within time. In the same way, four of the management factors are equally significant. These factors are collaboration and coordination, integrity and trust, regular site visits to attend to problems, and project management knowledge and skills. The findings in this study show a positive significant relationship between perceived service quality and factors of client satisfaction.

Economical design and compliance with budget showed a significant relationship ($r = .108$, $p = 0.05$). This supports the findings of Cheung et al. (2002). The study emphasized good and efficient, and economical, design for client satisfaction. This becomes a crucial factor in the roles of architectural firms in order to meet the needs of the client in the building industry. Buildability of designs ($r = .127$, $p = 0.020$), optimal and error-free design ($r = .215$, $p = 0.001$), delivery within time ($r = .180$, $p = 0.001$) are all considered very critical in meeting client's needs. However, the factors of efficiency analysis and response to client's brief, design flexibility, compliance with client's requirements, comprehensiveness of design, and compliance with statutory requirements had no significant relationship in terms of their impacts on the perception of service quality. This is regardless of the findings that some of the factors are important for engendering clients' satisfaction. A possible explanation could be that the areas of interest of the respondents who are involved in the projects are skewed towards the other factors. This, however, is in contrast with the findings of Fugar and Agyakwa-Baah (2010) which emphasized that if these relationships are not established, they could cause project delays, disputes with the client and ultimately resulting in client dissatisfaction. Thus, the study suggests that clients could be satisfied with an architectural service even when the quality of services rendered is below the highest standard of quality.

From the management factors, collaboration and coordination ($r = .152$, $p = 0.005$), integrity and trust ($r = .132$, $p = 0.016$), regular site visits to attend to problems ($r = .150$, $p = 0.006$), project management knowledge and skills ($r = .108$, $p = 0.049$) had significant relationships with the perceived service quality. This is in contrast with the findings of Amos-Abanie (2014). This scenario is possibly because the need for management skills in the Nigerian

building industry is becoming very vital because of the myriads of challenges in the industry. However, communication with other team members of the team, negotiation and conflict resolution skills, leadership skills and listening ability had no significant relationship in terms of their potentials for influencing the perception of service quality. It can be stated, therefore, that this is a wake-up call among the practitioners to set their priority right, particularly in the improvement levels of management skills. However, these factors are better embraced at a positive level in order to impact levels of client satisfaction.

5.0. Conclusion

The sustainability of professional firms is anchored on effective and efficient services. To ensure that architectural services meet the needs of clients who pay for their services in Nigeria, this study investigates the elements of architectural services that are essential for engendering clients' satisfaction and enhancing the perception of service quality. This is essential in a country where clients often question the quality of services being rendered by the architects and avoid their services where possible. The study adopted quantitative methods of data collection and analysis, using questionnaire for data collection as well as descriptive statistics and correlation analysis as means of data analysis.

The findings revealed the areas of technical and management competencies that require attention and continuous development towards enhancing client satisfaction and service quality. Results of the descriptive statistics show that clients' satisfaction could be enhanced by ensuring that the design meets their original brief, which may evolve from being an abstract idea at the inception of the design process. This requires architects' instincts in combining both functions and forms to attain design requirements. Meeting these needs should be corroborated by architects' proficiency in the well-established design quality indicators such as excellent buildability and detailed and comprehensive design. These are essential for preventing error-induced design changes, reworks and their subsequent impacts such as waste generation, cost overrun and potential delay.

At the managerial level, the study suggests that effective communication and collaboration are important practices that could actively drive clients' satisfaction. Considering that communication, coordination and collaboration have been largely established as being essential for construction project performance, it is important for the architects to actively collaborate with other project stakeholders. This will not only enhance project performance,

but it will also influence clients' satisfaction with the architectural services. An effective coordination, collaboration and communication with the project team will also ensure that the designers have up to date information about ongoing site activities, thereby ensuring that they visit construction sites to attend to problems where required.

The correlation analysis revealed four factors of technical criteria and four factors of management criteria that are significant for client satisfaction. The technical factors include designing within budget, buildable and error free design and delivery within time. This implies that while service quality is influenced by the architects delivering good quality and well documented design that are buildable and free from design errors, they are also expected to deliver the design within the agreed time and within the proposed project budget. As the architects are largely recognised as project lead in Nigerian construction industry, it is not surprising that project management knowledge and skills is recognised as one of the competencies that could be used in enhancing clients' perception of service quality. This is in addition to the measures established as the determinants of clients' satisfaction, which include collaboration and coordination with project team and regular site visits to attend to problems where required.

In order to improve overall clients' satisfaction, professional service providers are expected to focus on these factors in the process of service delivery. The expertise and skills of the architects can be further harnessed through continuous training and understanding of the project environment. The findings equally support previous argument that improving client satisfaction would involve placing emphasis on the design or product quality, rather than on service quality (or service process) only. This is because of the technicality of the services as opposed to what is obtainable in the consumer goods industry. This study has made important contribution to the understanding of the relationship between the perceived service quality and the various factors of client satisfaction. Architects are, however, expected to note the areas that are more critical in service to clients. This is important as clients are quick to invest their resources in alternative areas of interest that are better organised, and yields returns appropriately. It is also very essential in such a country where the services of architects are also rendered by less qualified personnel.

To ensure that architects possess the essential skills for engendering clients' satisfaction and positive perception of their service quality, it is important that academic and tertiary

institutions (Universities and Polytechnics) align their curriculum to meet the demands of the contemporary times. Professional organisations are also expected to compliment the efforts of the training institutions in addressing the needs of the industry. It is recommended for future study to examine the content of technical and management criteria of other professional service providers as it affects client satisfaction. This is especially as the activities in the building industry operate in a team approach, and cumulatively affect client satisfaction.

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Table 1. Criteria for measuring client satisfaction with Architectural services in previous studies

Label	Criteria identified in previous studies	References
Technical		
TC1	Efficient analysis and response to a client brief	Windapo and Cloete (2017); Kama and Junnonen, (2017).
TC2	Design flexibility	Mbachu and Nkado, (2006); Gyadu-Asiedu, (2009).
TC3	Compliance with client's requirements	Kwofie, Amos-Abanyie and Afram, (2016); Kama and Junnonen, (2017).
TC4	Economical design/compliance with budget	Soetanto, (2002); Mbachu and Nkado, (2006)
TC5	Buildability of designs	Oyedele and Tham (2005); Oyedele and Tham (2007); Gyadu-Asiedu, (2009).
TC6	Optimal and error-free design	Soetanto, (2002); Oyedele and Tham (2007); Kama and Junnonen, (2017)
TC7	Detailed and comprehensiveness of designs	Amos-Abanyie, Botchway, and Kwofie,(2014); Oluwatayo, Ibem and Amole (2014);
TC8	Aesthetic appeal	Mbachu and Nkado (2006); Gyadu-Asiedu, (2009).
TC9	Delivery within time	Gyadu-Asiedu, (2009)
TC10	Compliance with statutory requirements	Soetanto, (2002); Kama and Junnonen, (2017).
Management		
MC1	Collaboration and co-ordination	Kama and Junnonen, (2017); Oyedele and Tham, (2007); Tan (2012)
MC2	Integrity and trust	Soetanto, (2002); Oyedele and Tham (2007); Tan (2012)
MC3	Regular site visits to attend to problems	Chow and Ng (2005), Kwofie, Amos-Abanyie and Afram, (2016).
MC4	Communication of designs with other members of the team.	Chow and Ng (2005); Gyadu-Asiedu, (2009); Cheng, Proverbs and Oduzua, (2006).
MC5	Negotiation and conflict resolution skills	Yean (2003); Kwofie, Amos-Abanyie and Afram, (2016)
MC6	Project management knowledge and skills	Soetanto,(2002); Odusami (2003), Tan (2012); Amos-Abanyie, Botchway, and Kwofie, (2014
MC7	Leadership, motivation and listening ability	Odusami (2002); Kama and Junnonen, (2017).

Table 2: Ranking of the Criteria for Measuring Client Satisfaction

Label	Variables	Mean	SD	RANK
	Technical indicators of client satisfaction			
TC1	Efficient analysis and response to a client brief	3.83	.759	1
TC5	Buildability of designs	3.83	.860	1
TC3	Compliance with client's requirements	3.73	.935	3
TC2	Design flexibility	3.66	.764	4
TC7	Detailed and comprehensiveness of designs	3.64	.937	5
TC6	Optimal and error-free design	3.62	.606	6
TC8	Aesthetic appeal	3.53	.773	7
T10	Compliance with statutory requirements	3.48	.833	8
TC4	Economical design/ compliance with budget	3.26	.952	9
TC9	Delivery within time	3.18	1.043	10
	Management indicators of client satisfaction			
MC4	Communication of designs with other members of the team	4.03	.872	1
MC3	Regular site visits to attend to problems	3.87	1.131	2
MC1	Collaboration and co-ordination	3.84	.799	3
MC7	Leadership, motivation and listening ability	3.58	.822	4
MC6	Project management knowledge and skills	3.57	.878	5
MC2	Integrity and trust	3.33	.932	6
MC5	Negotiation and conflict resolution skills	2.91	.724	7

Table 3: Results of Pearson Product Moment correlation test for relationships between perceived service quality of Architectural consultancy firms and client satisfaction

Variables Correlated	R-value	p-value
Perceived Service Quality		
Technical indicators of client satisfaction		
Efficient analysis and response to a client brief	.084	.126
Design flexibility	.087	.110
Compliance with client's requirements	.089	.104
Economical design/ compliance with budget	**.108***	**.050**
Buildability of designs	**.127***	**.020**
Optimal and error-free design	**.215****	**.001**
Detailed and comprehensiveness of Designs	.097	.077
Aesthetic appeal	.082	.132

Delivery within time	**.180****	**.001**
Compliance with statutory requirements	.097	.077
Management indicators of client satisfaction		
Collaboration and co-ordination	**.152****	**.005**
Integrity and trust	**.132****	**.016**
Regular site visits to attend to problems	**.150****	**.006**
Communication with other members of the team	.001	.990
Negotiation and conflict resolution skills	.074	.181
Project management knowledge and skills	**.108***	**.049**
Leadership, motivation and listening ability	.094	.086

*Correlation is significant at the 0.05 level (2-tailed). Correlation is significant at the 0.01 level (2-tailed)
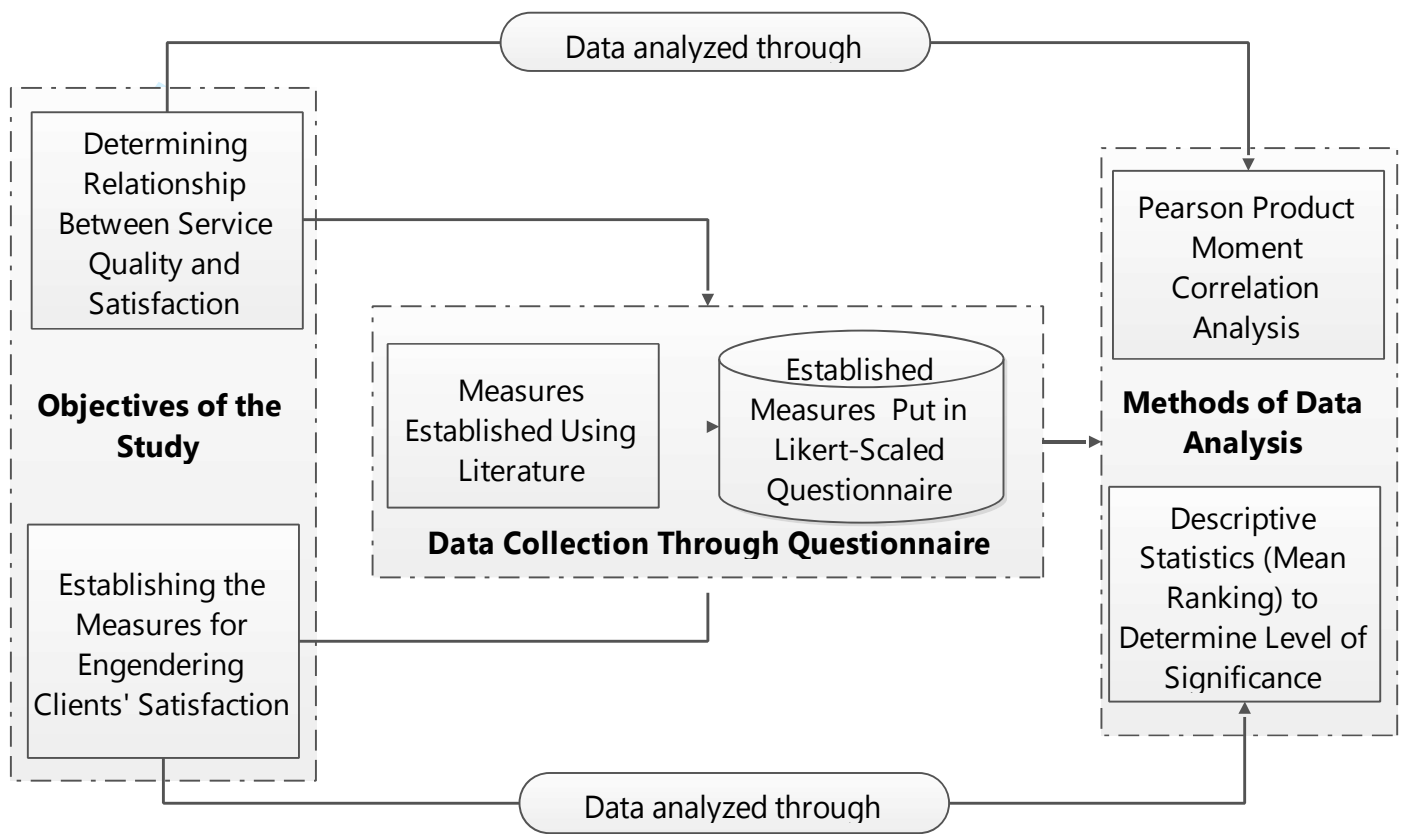r-correlation value, $p \leq 0.05$
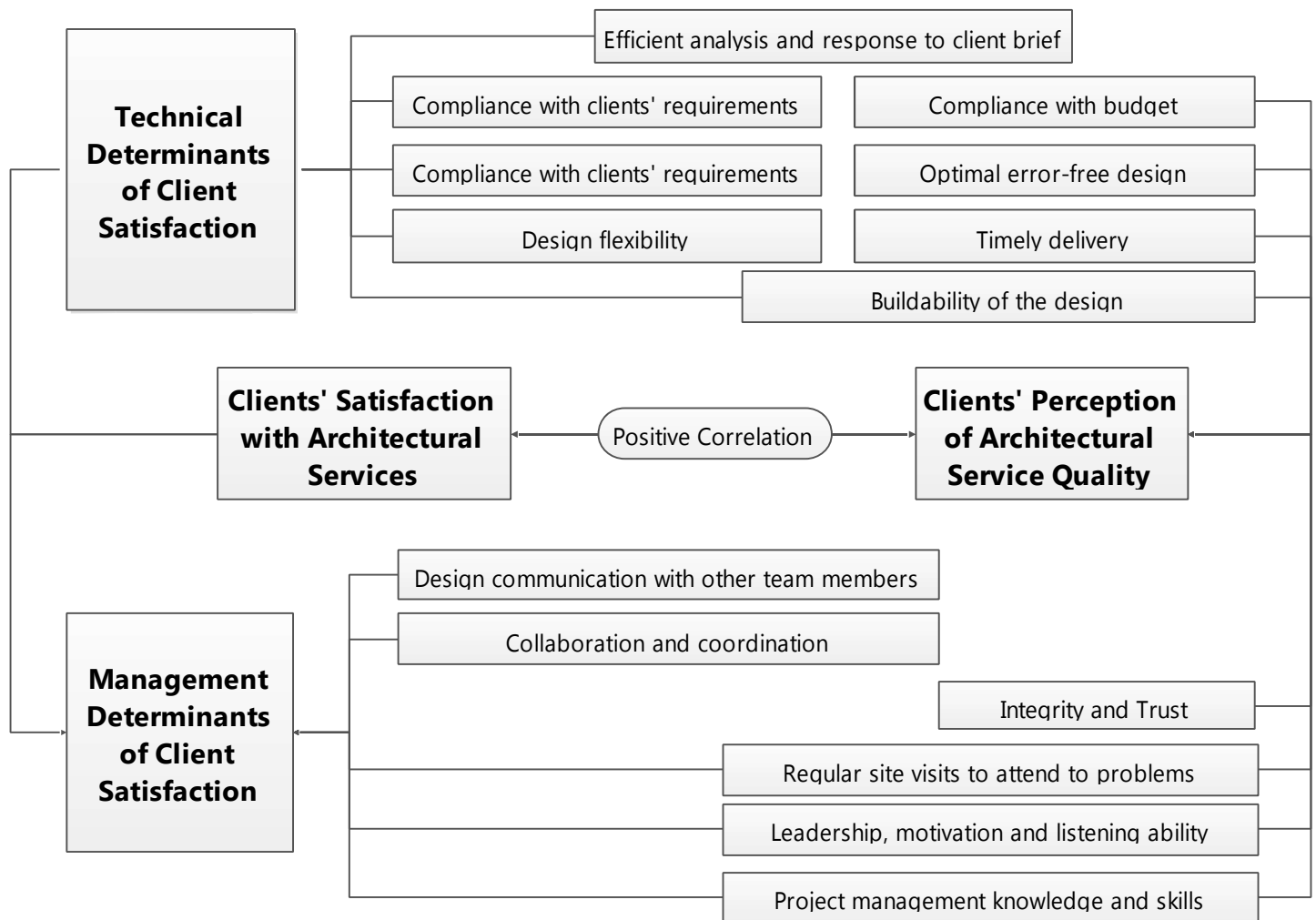
Figure I: Methodological Approach to the Study

Figure II: Measures for Engendering Client Satisfaction with Architectural Services in Nigeria