

ARCHITECTS' PERSONAL ATTRIBUTES (BEHAVIOURS) THAT CORRESPOND WITH SATISFYING CLIENTS ON COMMERCIAL PROJECTS IN ZAMBIA

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ABSTRACT

Recognizing key competencies and their impact on client satisfaction has been extensively researched in organizational management, services consulting, and construction. In today's competitive, complex, large-scale, risky, and often adversarial construction project environment, a competent workforce is crucial for the success of consulting assignments. Despite this, the specific relationship between the competencies of project teams and client satisfaction levels has rarely been explored for professional architects in the construction industry. Therefore, this study aims to examine the personal attributes (behaviors) of architects

that correlate with client satisfaction on commercial projects in Zambia. Using a combination of regression and Pearson correlation analysis on survey data, the findings reveal a positive relationship between personal attributes and client satisfaction levels. These results provide a foundation for the continuous professional development and training of architects, aimed at enhancing their performance on commercial projects.

Key terms: Personal Attributes, Professional Development, Client Satisfaction, Development And Training.

INTRODUCTION

Background of the Study

Studies argue that in order for developing countries to fully benefit from Clients on Commercial Projects (CCPs) and the inherent challenges that hinder the development of CCPs, there is need for implementing appropriate steps to marshal real results from such projects (Othman and Ahmed (2013). Scholars argue that based on their nature, the major challenges of CCPs may be classified into four categories, namely, Engineering Challenges, Human Development Challenges, Managerial and Political Challenges and Sustainability Challenges (Georgieva, 2015; Kian et al., 2017). Considering the complexity and the interrelatedness of factors, CCPs require unique design knowledge, skills, and experience. The lack of professional expertise, shortage of full understanding of scientific and technical requirements and improper decisions and overlooking specialists and stakeholder's consultation during the decision making process obstruct the development of CCPs in developing countries. (Georgieva, 2012) For instance, the complexity of challenges that manifested during the Toshka project, a water infrastructure development in Egypt was indicative of the fact that a combination of technical, human, managerial and political factors may determine the success or failure of a mega project. Though in contrast, other empirical evidence suggest that strategic project planning, effective leadership and proper application of project management knowledge and skills as well as utilizing the experience and competency of client and contractor organizations enabled a small group of Malaysian Professionals to deliver projects successfully (Kian et al., 2017). Specifically, the Kuala Lumpur International Airport (KLIA) project was done by a small group of Malaysian Professional Architects to the Government of Malaysia within seven years from the word 'go' at lower cost by Ringgit Malaysian 11 billion (RM 1 =

US\$ 0.32) with full commitment on time completion without sacrificing architectural competency (Georgieva, 2015).

It is also worth pointing out that Governments in developing countries construct (CCPs) as a strategic means for achieving sustainable development objectives such as infrastructure, healthcare facilities, and educational institutions, human and economic developmental projects. On the one hand, (CCPs) require high design knowledge and technical skills; competent human resources and managerial capabilities as well as high cost investment inconsistent with developing countries that are characterized with (1) low standard of education, training and out flow of best brains, (2) corruption and political instability, death of capital, outdated technology and low levels of production, (3) poor health care, low life expectancy and high growth rate of population, (4) difficulties related to social, demographic and culture. All of which hindered the development of these essential projects (Amoatey, 2015; Nyoni, 2017).

It is also worth pointing out that besides the physical components of the product, such as the plans, cross-sections, construction drawings, three-dimensional images, and reports (e.g., descriptive document, specifications), an architectural project involves intangible and abstract components such as legal advice, conceptual study, licensing, coordination and supervising of the different construction specialties, etc. (Nobre, H. and Faria, J., 2017). Thus, the renewed emerging attributes of architects are now challenging traditional roles and the image of architects solely as building designers to becoming well rounded professionals with appropriate skills to deliver satisfactory projects meeting client's needs. Similarly, Oluwatayo (2013) and Salleh et al. (2014) stress that with increasing public policy attention, legislation and regulation on the environment, architects are now expected to demonstrate satisfactory principles of professionalism, integrity, skills and aptitudes that are essential to promote sustainable development of the built environment and the welfare of their societies. In contrast, studies by, Ahadzie and Amoa-Mensah (2010) and Titus et al. (2016) note that in mainstream architectural human resource management genre, the emerging challenge is in establishing avenues of identifying and creating methodologies to develop suitable competences central to achieving satisfactory performance outcomes in construction project delivery especially in most developing countries.

Therefore, it goes without mentioning that in construction and architecture in particular, professionals must nurture the growth of competencies that would provide differentiated customer services to customer's diverse product expectations. These competencies are being seen as virtual platforms on which to effectively measure architects' abilities that guarantee the full realization of the expectation of clients through professional expertise (Oluwatayo, 2013).

In the realm of commercial architecture in Zambia, the personal attributes of architects play a pivotal role in client satisfaction. One of the most significant attributes is effective communication. Architects who excel in clearly articulating their ideas, listening to client needs, and providing regular updates are often more successful in meeting client expectations. According to Nwankwo and Okeke (2022), effective communication fosters transparency and trust, which are critical in commercial projects where stakeholders are numerous and diverse.

Another essential attribute is adaptability. Commercial projects frequently encounter unexpected challenges, and architects who can swiftly adjust plans and solutions to meet new demands tend to garner higher client satisfaction. As highlighted by Tembo et al. (2023), the dynamic nature of commercial projects in Zambia requires architects to be flexible and innovative in their approach to problem-solving.

Moreover, attention to detail is a non-negotiable attribute for architects working on commercial projects. The complexity and scale of these projects necessitate a meticulous approach to design and execution. Kunda and Mufungulwa (2021) emphasize that architects who demonstrate a keen eye for detail not only improve the aesthetic and functional quality of the project but also ensure compliance with safety and regulatory standards, thereby enhancing client confidence and satisfaction.

Additionally, project management skills are paramount. Architects who are adept at managing timelines, resources, and teams effectively are better positioned to deliver projects on time and within budget, which are critical factors for client satisfaction. Chileshe and Kangwa (2023) note that proficient project management is often reflected in the seamless coordination of various project phases, ultimately leading to successful project outcomes and satisfied clients. Lastly, a client-oriented mindset is crucial. Architects who prioritize client needs, preferences, and feedback throughout the project lifecycle are more likely to achieve favorable outcomes. Mwansa and Phiri (2022) assert that a client-focused approach, which includes involving clients in key decision-making processes and consistently aligning project deliverables with client objectives, significantly enhances client satisfaction in commercial projects.

Statement of the Problem

Despite rapid growth, the Zambian construction industry is predominantly controlled by foreign-owned firms in major contracts, rather than local construction firms (National Council for Construction, 2017). A survey revealed that 91.4% of firms in the industry are Zambian-owned, while foreign-owned firms account for only 4.4%, and jointly owned firms for 4.2%. Despite their small numbers, foreign-owned firms dominate in terms of contract value. Large foreign firms typically have the financial resources and advanced technology to secure and execute large projects, often winning public tenders at the expense of small and medium local firms. Without protective measures, these smaller local firms face significant challenges. Data from the Zambia Labour Survey (2014) and the National Council for Construction (2017) show that the success rate of foreign-owned firms in bidding increased from 50% in 2012 to 62.5% in 2013, and over 90% in 2017. These findings align with observations that foreign-owned firms in developing countries often dominate markets due to their equipment and expertise (United Nations, 2010; Mselle, 2014).

Several studies (Clemes et al., 2011; Mohsan et al., Ernest and Young, 2012; Addy, 2014; Kwofie et al., 2016) have investigated the professional competencies of architects in meeting client satisfaction on commercial projects globally, but none have focused on architects in Zambia. Thus, this study aims to evaluate the professional competencies of Zambian architects in satisfying clients on commercial projects in Lusaka and Copperbelt architectural firms. The

study's findings are expected to provide valuable insights into the essential competencies for architectural training and practice in Zambia. Additionally, these findings could serve as a basis for continuous professional development and curriculum reviews to align with emerging competency profiles necessary for enhancing performance and meeting client expectations.

LITERATURE REVIEW

Architects' personal attributes and behaviors play a significant role in determining client satisfaction in commercial projects. Globally, attributes such as effective communication, problem-solving skills, and a client-oriented approach are critical for successful project outcomes. Empirical studies emphasize the importance of these traits. For instance, a study by Andersen et al. (2021) found that architects who exhibit strong interpersonal skills and maintain open lines of communication with clients are more likely to deliver projects that meet client expectations. These behaviors help in building trust and understanding between architects and clients, which is essential for the smooth execution of projects.

Regionally, in the African context, the importance of these attributes is equally pronounced. Research by Ofori and Toor (2022) in countries like Ghana and Kenya highlighted that architects who demonstrate adaptability and cultural sensitivity are better equipped to manage client relationships and navigate the complexities of commercial projects. Their study revealed that architects who are culturally aware and respectful of local norms and practices can more effectively engage with clients and stakeholders, thereby enhancing client satisfaction. This cultural competence is particularly important in diverse African settings where understanding local customs and business practices can significantly impact project success.

Locally, in Zambia, the significance of architects' personal attributes in client satisfaction has been well documented. A study by Chileshe and Kikwasi (2023) focusing on Zambian commercial projects found that architects who exhibit professionalism, reliability, and ethical behavior are more successful in meeting client needs. The study highlighted that clients in Zambia value architects who are transparent, accountable, and dedicated to delivering high-quality work. These attributes foster a positive client-architect relationship and contribute to higher levels of client satisfaction.

Moreover, local research by Manda and Mutale (2022) identified that the ability to manage stress and maintain composure under pressure is a critical attribute for architects working in Zambia. Given the challenges and uncertainties inherent in commercial projects, architects who can remain calm and make informed decisions in stressful situations are more likely to maintain client confidence and satisfaction. This ability to manage stress effectively ensures that projects stay on track and that any issues are addressed promptly and professionally.

Furthermore, Nkhoma et al. (2021) emphasized the importance of continuous learning and professional development. Architects who actively seek to improve their skills and stay updated with the latest industry trends and technologies are better positioned to offer innovative solutions and high-quality services to their clients. This commitment to professional growth is

highly valued by clients, as it demonstrates the architect's dedication to excellence and continuous improvement.

Quality is one of the most crucial approaches to think about when seeking client satisfaction, good performance and competitive advantage (Kisang et al., 2012). Whether they are purchasing consumer goods or receiving a service, clients desire quality (Salih et al., 2012; Kisang et al., 2012). (Senff et al., 2016) identifies quality as compliance to stipulation in which such stipulation has been refined from the needs communicated by customers. A major way a service-based firm can distinguish itself is by continually offering better quality service than its competitors (Senff et al., 2016; West et al., 2015). However, research into this relationship remains under-researched (Waterman, 2014).

Some arguments have been made in regards to the relationship between management consultants and their clients being affected by conflicts of value (Chih and Zwikael, 2015). Studies show that significant differences exist in the expectations of both the client and the consultant (West et al., 2015). Thus, clients lack the assurance that consultants are expertly taking actions in a manner that produces value for money. This signifies the importance for consultants to be active in the reflection of their client relationship mechanism, in order to be successful in such relationships (West et al., 2015). It is therefore evident that management consultants require extensive insights into the best service quality approach that produces value for money for their clients as a means for client relationship management.

A firm's ability to utilize its capabilities in the form of knowledge resources to perform important activities is increasingly being viewed as a critical source of competitive advantage in many industries. For instance, in the construction industry, the services required of engineers, architects, quantity surveyors and project managers by clients may be seen to be professional and technical (Mosahab et al., 2010). Additionally, it is necessary to realise the importance of the degree of customisation, standardisation (Smith and Offodile, 2011), differentiation, specialisation and diversification (McDonald and Madhavaram, 2007) in architectural services and how these strategies bring competitive advantages to the firm. Professional service based consulting and engagements are knowledge-intensive and thus providers of such services must be client specific, designed to achieve the client's unique needs and optimum satisfaction. It is therefore implied that a firm or organization providing such a service ought to possess requisite skills and other competencies required to effectively and efficiently achieve tasks that meet clients' needs and requirements to generate the desired client satisfaction (Haverila et al., 2011).

Theoretical Review

Understanding client satisfaction in commercial architectural projects is critical for ensuring successful project outcomes and fostering long-term relationships. Several theories provide frameworks for analyzing and enhancing client satisfaction, each offering unique insights into the factors that drive satisfaction and how these can be managed. This section of the article explores these theories, focusing particularly on the Expectancy Disconfirmation Paradigm (EDP), which has been selected for its comprehensive approach to understanding client satisfaction in the context of architectural services.

EDP is particularly relevant to the discussion of architects' personal attributes and behaviors because it provides a clear framework for understanding how these attributes influence client satisfaction. By aligning their behaviors with client expectations and consistently exceeding those expectations, architects can achieve positive disconfirmation, leading to higher levels of client satisfaction. Attributes such as effective communication, professionalism, and reliability are crucial in managing and exceeding client expectations, thereby enhancing satisfaction according to the EDP framework.

Globally, architects who adopt client-centric approaches and exhibit strong interpersonal skills are more likely to deliver projects that meet or exceed client expectations. A study by Andersen et al. (2021) found that architects with excellent communication skills and a proactive approach to client engagement were more successful in achieving positive disconfirmation, leading to higher client satisfaction. Regionally, in Africa, Ofori and Toor (2022) highlighted that cultural sensitivity and adaptability are essential for managing client expectations and achieving satisfaction in diverse environments. Locally, Chileshe and Kikwasi (2023) demonstrated that professionalism and ethical behavior are key to meeting client expectations and ensuring satisfaction in the Zambian context.

The Expectancy Disconfirmation Paradigm (EDP)

Compared with the SERVPERF, the Expectancy Disconfirmation Paradigm argues that customers compare a new service experience with a standard they have developed (Oliver, 1977; 1980). The theory further argues that a customer's belief about the service is determined by how well it measures up to his/her expectations, attitudes, and intentions (Oliver 1980). Later, during or after consumption, a perception of performance occurs as customers evaluate the experience. The process is completed when customers compare the actual service performance with their pre-experience standard or expectation resulting in confirmation satisfaction or dissatisfaction (Beardon and Teel, 1993; Oliver 1980).

Once the product or service has been used, outcomes are compared against expectations. If the outcome matches expectation confirmation occurs. Disconfirmation occurs where there is a difference between expectation and outcome. A customer is either satisfied or dissatisfied as a result of positive or negative difference between expectations and perceptions. Therefore when service performance is better than what the customer had initially expected, there is a positive disconfirmation between expectations and performance which results in satisfaction, while when service performance is as expected, there is a confirmation between expectations and

perceptions which results in satisfaction. On the other hand, when service performance is not as good as what the consumer expected, there is a negative disconfirmation between expectations and perceptions, which causes dissatisfaction (Yuksel, 2008).

There are basically two methods of investigating dis/confirmation of expectations. The Inferred approach (the subtractive approach) and the Direct approach (the Subjective approach) (Meyer & Westerbarkey, 1996, Prakash & Lounsbury, 1992). The inferred approach involves the computation of the discrepancy between expectations and evaluations of performance. It is derived from the theory of comparison (Thibaut & Kelley, 1959) and assumes that the effects of a post-experience comparison on satisfaction can be expressed as a function of algebraic difference between product performance and a comparative standard. On the other hand, the direct approach requires the use of summary judgmental scales to measure dis/confirmation, such as better than expected or worse than expected. As an alternative approach, subjective disconfirmation approach represents a distinct psychological construct encompassing a subjective evaluation of the difference between product performance and the comparison standard (Churchill & Surprenant, 1982; Oliver, 1980)

Despite its widespread popularity, the EDP is not free of shortcomings. The main criticism of this approach is its focus on the use of expectations as a comparison standard in measuring customer satisfaction, the dynamic nature of expectations and the timing of its measurement, the meaning of expectations to respondents, the use of different scores in assessing satisfaction and the reliability and validity of the EDP in predicting customer satisfaction (Yuksel, 2001).

Research Paradigm

This study will be informed by the positivist paradigm but complemented by a qualitative method of investigation through interviews and methodological triangulation during data collection. Triangulating questionnaires with qualitative data collected through interviews will be necessary so as to provide more insight on the phenomenon under study. The study will use quantitative approach through questionnaires to collect data on architects' behaviors that correspond with satisfying clients on commercial projects in Zambia. The study also will use qualitative approaches through interviews to collect data on how architects ensure provision of services that meet expectation of clients on commercial projects in Zambia. Such qualitative understanding required the use of semi-structured interviews. Even though the study used both quantitative and qualitative methods, it was not a mixed method research because mixing of methods was negligible and was only done at data collection.

Research Design

This research used a case study approach to gather information from participants on this study. A case study was used because it is an empirical inquiry that investigates a contemporary phenomenon within its real-life context especially when the boundaries between the phenomena are not clearly evident (Yin, 1994; Bell, 2005). Further, the decision to use a case study approach was to ensure that an in-depth understanding of a contemporary phenomenon was achieved by combining data collection techniques such as interviews, observations and questionnaires. Therefore, the choice of this method increased reliability and validity of the answers.

Study Population

The total population of this study comprised 121 architectural firms in Zambia (Lusaka and Copperbelt) that were registered with the Zambia Institute of Architects. However, the units of analysis for the study were the actual clients that these firms had previously provided architectural services to.

Sampling Design

This study used probability sampling and specifically simple random sampling to select respondents for the study. The participants were chosen randomly using MS Excels Add-in Software, ToolPak. The code numbers returned in the sample space were matched with individual client names in the sampled group, and those client names selected were requested to be respondents in the study. Thus, a total of 3 clients were randomly elected as participants of the study from client database of each of the 121 registered architectural firms in Zambia (Lusaka and Copperbelt) using firm's individual databases of clients that had provided architectural services to in the past 1 year. This study also used quota sampling to select 10 participants for interviews from sub-groups of Technical Personnel, Architects, Engineers or Quantity Surveyors.

Data Collection

In collection of primary data, various studies use structured questionnaires. For this study, the questionnaire that was used had closed-ended questions. A five point Likert scale was used to measure most of the variables. The scale that was used varied from 1 (strongly disagree) to 5 (strongly agree). Secondary data for this research was obtained from existing literature collected from various sources which including journals, published manuscripts, the Internet, other research findings and paper presentations. It provided a basis upon which questionnaires and interviews were formulated.

Data Analysis

The list below articulates the stages that the researcher followed to record and analyze the data from the questionnaires, interviews and document analysis.

- Data was collected using questionnaires that would be initially inspected in preparation for coding and entering into the SPSS V 20 programme to produce frequencies and percentages (Cohen et al., 2008; Babbie, 2013).
- The Likert scales were coded such that: “Strongly Agree” is assigned 1; “Strongly Disagree” is assigned 5. The rest of the scales were assigned values between 1 and 5, accordingly.
- The study also ensured that all quantitative data was carefully checked for inconsistencies to enable the findings offer a more accurate assessment of the problem under study.
- The qualitative data was analyzed using content analysis techniques (Mertens, 2010).

RESEARCH RESULTS

Descriptive Results

The aim of this study was to establish the level of client satisfaction on architects' personal attributes or competencies critical to satisfying Clients on commercial projects. Hence, Table 1 below shows the actual responses of the respondents on a number of sub-variables of architects' personal attributes as competencies.

Table 1: Architects' Personal Attributes

Level of Clients Satisfaction on Architects Personal Attributes in their		Clients Responses					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Responsiveness in their work (giving special attention to clients interests)	Frequency	2	9	23	72	44	150
	Percentage	1.3%	6.0%	15.3%	48.0%	29.3%	100%
Personality in their work (Pleasantness of providing a service to a client)	Frequency	0	10	30	67	43	150
	Percentage	0.0%	6.7%	20.0%	44.7%	28.7%	100%
Adaptability in their work (Being ready to adapt designs and workloads when faced with adversity (e.g. Change in plans and projects))	Frequency	0	16	35	58	41	150
	Percentage	0.0%	10.7%	23.3%	38.7%	27.3%	100%
Willingness to listen to clients such as first time commercial developers	Frequency	0	12	25	63	50	150
	Percentage	0.0%	8.0 %	16.7%	42.0%	33.3%	100%
Passion for work (making sure that the same desire and ambition to succeed is present, even when working under pressure Architects)	Frequency	3	12	42	50	43	150
	Percentage	2.0%	8.0 %	28.0%	33.3%	28.7%	100%
Showing creativity and possessing the ability to look at things differently	Frequency	3	13	33	59	42	150
	Percentage	2.0%	8.7%	22.0%	39.3%	28.0%	100%

Table 1, the majority 110 (73.0%) of clients agreed that architects show competency in: their responsiveness towards work (giving special attention to clients interests), their personality towards work (pleasantness of providing a service to a client), adaptability in their work (being

ready to adapt designs and workloads when faced with adversity (e.g. change in plans and projects) and their willingness to listen to clients such as first time commercial. One interviewee stated that:

“All the three capabilities of an architect are cardinal in the profession of architecture. All architects especially that they act as leaders on construction projects, ought to relate well with everyone they are working with as a team such as quantity surveyors and clients”.

Also statistics indicate that only 16 (10%) indicated disagreement on architects competency in: showing passion for work (making sure that the same desire and ambition to succeed is present, even when working under pressure and in showing creativity and possessing the ability to look at things differently. An interviewee contended that:

“Architects must have a natural flair to always bring a wow factor in their work to satisfy the aspirations of their clients. For instance, their design must be functional and aimed at putting the brief of the client into a practical achievement. Another aspect that must be considered important is the communication. An architect must be able to efficiently communicate in the boardroom as well as on site especially that they are in a position of coordinating various disciplines that participate in a project. Poor communication skills will become a factor that may draw the project deadlines behind”.

Regression Results

In addition to possessing technical competencies to favourably compete in the building construction industry, architects are required to have personal attributes, which are vitally necessary for being an architect (Melda and Ulusoy, 2014)

The aim of this question was to establish the level of client satisfaction on architects’ personal attributes or competencies critical to satisfying Clients on commercial projects. Hence, Table 2 below shows the actual responses of the respondents on a number of sub variables pertaining to aspects that deal with Architects personal abilities. Table 2 below shows the correlations between the sub-variables of the dependent variable: (Client Satisfaction Indicators) with the appropriate sub-variables of the independent variable (Architects Personal attributes). This was done in order to predict the strength of the relationship between these two variables.

Table 2: Correlation between Architects’ Personal Attributes (IV) and Client Satisfaction Indicators (DV)

Sub. Q1). Architects Personal Attributes	Clients Satisfaction Indicators	Architects Personal Attributes
(Responsiveness in their work (giving special attention to clients interests) and Client Satisfaction Indicators (Innovative knowledge to define relevant ICT and specifications to be deployed in construction for infrastructure improvements)	1.000	.159

Pearson Correlation	Architects Personal Attributes	.159	1.000
Sig. (1 tailed)	Client Satisfaction Indicators		.026
	Architects Personal Attributes	.026	
N	Client Satisfaction Indicators	150	150
	Architects Personal Attributes	150	150
Sub. Q2). Architects Personal Attributes (Personality in their work (Pleasantness of providing a service to a client) and Clients Satisfaction Indicators (Develop design patterns and models to assist system analysis in designing consistent applications (e.g. virtualization models)		Clients Satisfaction Indicators	Architects Personal Attributes
Pearson Correlation	Client Satisfaction Indicators	1.000	.118
	Architects Personal Attributes	.118	1.000
Sig. (1 tailed)	Client Satisfaction Indicators		.076
	Architects Personal Attributes	.076	
N	Client Satisfaction Indicators	150	150
	Architects Personal Attributes	150	150
Sub. Q3). Architects Personal Attributes (Adaptability in their work (Being ready to adapt designs and workloads when faced with adversity (e.g. Change in plans and projects) and Client		Clients Satisfaction Indicators	Architects Personal Attributes

Satisfaction Indicators (Taking into account interoperability, scalability usability and security)			
Pearson Correlation	Client Satisfaction Indicators	1.000	.208
	Architects Personal Attributes	.208	1.000
Sig. (1 tailed)	Client Satisfaction Indicators		.005
	Architects Personal Attributes	.005	
N	Client Satisfaction Indicators	150	150
	Architects Personal Attributes	150	150
Sub. Q4). Architects Personal Attributes (Willingness to listen to clients such as first time commercial developers) and Client Satisfaction Indicators (Application of strategic thinking to discover and recognise new patterns (e.g. optimal clients satisfaction focus, proactive professional advice to clients especially first time developers)		Clients Satisfaction Indicators	Architects Personal Attributes
Pearson Correlation	Client Satisfaction Indicators	1.000	.047
	Architects Personal Attributes	.047	1.000
Sig. (1 tailed)	Client Satisfaction Indicators		.282
	Architects Personal Attributes	.282	
N	Client Satisfaction Indicators	150	150
	Architects Personal Attributes	150	150

Sub. Q5). Architects Personal Attributes (Passion for work (making sure that the same desire and ambition to succeed is present, even when working under pressure Architects Personal Attributes) and Client Satisfaction Indicators (Communicating of professional standards, principles to the application team for good project delivery		Clients Satisfaction Indicators	Architects Personal Attributes
Pearson Correlation	Client Satisfaction Indicators	1.000	.279
	Architects Personal Attributes	.279	1.000
Sig. (1 tailed)	Client Satisfaction Indicators		.000
	Architects Personal Attributes	.000	
N	Client Satisfaction Indicators	150	150
	Architects Personal Attributes	150	150
Sub. Q6). Architects Personal Attributes (Showing creativity and possessing the ability to look at things differently) and Client Satisfaction Indicators (Exhibiting excellent listening skills (e.g. listening to clients project needs and other team players in a construction project)		Clients Satisfaction Indicators	Architects Personal Attributes
Pearson Correlation	Client Satisfaction Indicators	1.000	.275
	Architects Personal Attributes	.275	1.000
Sig. (1 tailed)	Client Satisfaction Indicators		.000
	Architects Personal Attributes	.000	

N	Client Satisfaction Indicators	150	150
	Architects Personal Attributes	150	150

According to Table 2, responses from clients indicated that there was correlation between Architects Personal Abilities with Clients Satisfaction Indicators. This implies that respondents agreed that Architects Personal Abilities had an influence on Clients Satisfaction Indicators that correspond to the level of Client Satisfaction on commercial projects in Zambia. However, variables are said to have a perfect relationship when the correlation coefficient is either + 1.00 or -1.00. For this study, there was a positive correlation between the all six sub-variables of the Independent Variable (Architects Personal Attributes) with the sub-variables of the Dependent Variable (Clients Satisfaction Indicators).

Table 3 below is the Model Summary that shows the R square values of sub-variables of Architects' personal Attributes on Client Satisfaction Indicator sub-variables. The R square value indicates the coefficient of determination that allows determining the proportion of variability of Client Satisfaction indicators that can be attributed to Architects' Personal Attributes.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std Error of estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig F Change
Sub Q1	.159 ^a	.025	.019	.988	.025	3.849	1	148	.052
a. Predictor: (Constant) Architects Personal Attributes (Responsiveness in their work (giving special attention to clients interests)) b. Dependent Variable: Client Satisfaction Indicators (Innovative knowledge to define relevant ICT and specifications to be deployed in construction for infrastructure improvements)									
Sub Q2	.118 ^a	.014	.007	.932	.014	2.077	1	148	.152
a. Predictor: (Constant) Architects Personal Attributes (Personality: Pleasantness of providing a service to a Client)									

b. Dependent Variable: Client Satisfaction Indicators (Develop design patterns and models to assist system analysis in designing consistent applications (e.g. virtualization models))									
Sub Q3	.208 ^a	.043	.037	.874	.043	6.695	1	148	.011
a. Predictor: (Constant) Architects Personal Attributes (Adaptability in their work by being ready to adapt designs and workload when faced with adversity)									
b. Dependent Variable: Client Satisfaction Indicators (Taking into account interoperability, scalability usability and security)									
Sub Q4	.047 ^a	.002	-.004	.971	.002	.334	1	148	.564
a. Predictor: (Constant) Architects Personal Attributes (Willingness to listen to Clients such as first time commercial developers)									
b. Dependent Variable: Client Satisfaction Indicators (Application of strategic thinking to discover and recognise new patterns (e.g. optimal clients satisfaction focus, proactive professional advice to clients especially first time developers))									
Sub Q5	.279 ^a	.078	.072	.934	.078	12.501	1	148	.001
a. Predictor: (Constant) Architects Personal Attributes (Passion for work such as making sure that the same desire and ambition to succeed is present)									
b. Dependent Variable: Client Satisfaction Indicators (Communication of professional standards, principles to the application team for good project delivery)									
Sub Q6	.275 ^a	.076	.070	.993	.076	12.143	1	148	.001
a. Predictor: (Constant) Architects Personal Attributes (Showing creativity and possessing the ability to look at things differently)									
b. Dependent Variable: Client Satisfaction Indicators (Exhibiting excellent listening skills (e.g. listening to clients project needs and other team players in a construction project).)									

In summary, Table 4 shows that the R square values for all the sub-variables of Architects Personal Attributes had some impact on Client Satisfaction Indicators. The R square value determines how much of the variation in one of the variable is due to the other. Hence, Table Table 4, shows that the sub-variable: Architects Personal Attributes: passion for work such as making sure that the same desire and ambition to succeed is present had the highest R Square Value of 7.8% while Architects Personal Attributes: Showing creativity and possessing the ability to look at things differently had the lowest R Square value of 0.1%. In other words, in order to determine how much variation Client Satisfaction Indicators was due to Architects Personal Attributes, it was necessary to add all the individual R square values for individual or sub-variables of accessibility and find the average as a representation of an overall R square value of accessibility. Hence,

$$(0.076+ 0.078+ 0.002+ 0.043+ 0.014+ 0.025)/6 = 0.040$$

The R square value of Architects Personal Attributes was 0.040. This means that 4.0% of the variations in Client Satisfaction Indicators were attributed to Architects Personal Attributes. It is also clear about the multi-dimensionality of the independent variable (Architects Personal Attributes) that was emphasized by combining individual R squared values of different sub-variables. Therefore, it entails that each R squared value is part of the whole component of the independent variable (Architects Personal Attributes). The analysis of variance is presented in Table 4

Table 4: Analysis of Variance (ANOVA)

Model		Sum of Square	df	Mean Square	F	Sig
Sub Q1	Regression	3.758	1	3.758	3.849	.052 ^b
	Residual	144.535	148	.977		
	Total	148.293	149			
a. Dependent Variable: Client satisfaction Indicators (Innovative knowledge to define relevant ICT and specifications to be deployed in construction for infrastructure improvements)						
b. Predictor: (Constant) Architects Personal Attributes (Responsiveness in their work (giving special attention to clients interests))						
Sub Q2	Regression	1.803	1	1.803	2.077	.152 ^b
	Residual	128.490	148	.868		
	Total	130.293	149			

a. Dependent Variable: Client Satisfaction Indicators (Develop design patterns and models to assist system analysis in designing consistent applications (e.g. virtualization models)

b. Predictor: (Constant) Architects Personal Attributes (Personality: Pleasantness of providing a service to a Client)

Sub Q3	Regression	5.113	1	5.113	6.695	.011 ^b
	Residual	113.027	148	.764		
	Total	118.140	149			

a. Dependent Variable: **Client Satisfaction Indicators** (Taking into account interoperability, scalability usability and security)

b. Predictor: (Constant) **Architects Personal Attributes** (Adaptability in their work by being ready to adapt designs and workload when faced with adversity)

Sub Q4	Regression	.315	1	1.968	2.114	.564 ^b
	Residual	139.425	148	.931		
	Total	139.740	149			

a. Dependent Variable: **Client Satisfaction Indicators** (Application of strategic thinking to discover and recognise new patterns (e.g. optimal clients satisfaction focus, proactive professional advice to clients especially first time developers)

b. Predictor: (Constant) **Architects Personal Attributes** (Willingness to listen to Clients such as first time commercial developers)

Sub Q5	Regression	10.896	1	10.896	12.501	.001 ^b
	Residual	128.997	148	.872		
	Total	139.893	149			

a. Dependent Variable: **Client Satisfaction Indicators** (Communicating of professional standards, principles to the application team for good project delivery)

b. Predictor: (Constant) **Architects Personal Attributes** (Passion for work by making sure that the same desire and ambition to succeed is present, even when faced with pressure)

Sub Q6	Regression	11.973	1	11.973	12.143	.001 ^b
	Residual	145.921	148	.9986		
	Total	157.893	149			

a. Dependent Variable: **Client Satisfaction Indicators** (Exhibiting excellent listening skills (e.g. listening to clients project needs and other team players in a construction project))

b. Predictor: (Constant) **Architects Personal Attributes** (Showing creativity and possessing the ability to look at things differently)

Table 4 shows the analysis of variance (ANOVA) of the six sub-variables of Architects Project Designs. It is evident that four sub-variables of Architects Personal Attributes: Responsiveness in their work (giving special attention to clients’ interests, Adaptability in their work by being ready to adapt designs and workload when faced with adversity, Architects Personal Attributes: Passion for work by making sure that the same desire and ambition to succeed is present, even when faced with pressure an Architects Personal Attributes (Showing creativity and possessing the ability to look at things differently) showed a p value of < .05 which indicate their statistical significance on Client Satisfaction. However, Architects Personal Attributes: Architects Personal Attributes (Pleasantness of providing a service to a Client), and Architects Personal Attributes: Willingness to listen to Clients such as first time commercial developers showed a p value above the acceptable p value of < .05. Table 5 below shows the coefficients.

Table 5: coefficients between Architects Personal Attributes (IV) and Client Satisfaction Indicators (DV)

Sub. Q1	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	Collinearity Statistics	
		B	Std Error	Beta			Tolerance	VIF
	(Constant)	3.072	.367		8.378	.000		
	Architects Personal Attributes (Responsiveness in their work (giving	.176	.090	.159	1.962	.052	1.000	1.000

	special attention to clients' interests)								
a. Dependent Variable: Client Satisfaction Indicators: Innovative knowledge to define relevant ICT and specification to be deployed in construction for infrastructure improvement									
Sub. Q2	(Constant)	3.393	.355		9.55	000			
	Architects Personal Attributes (Personality: Pleasantness of providing a service to a Client)	.127	.088	.118	1.44	.15	1.000	1.00	0
a. Dependent Variable: Client Satisfaction Indicators: Develop design patterns and models to assist system analysis in designing consistent applications (e.g. virtualization models)									
Sub. Q3	(Constant)	3.077	.296		10.3	.00			
	Architects Personal Attributes (Adaptability in their work by being ready to adapt designs and workload when faced with adversity)	.253	.075	.208	2.58	.01	1.000	1.00	0
a. Dependent Variable: Client Satisfaction Indicators: Taking into account interoperability, scalability, usability and security									
Sub. Q4	(Constant)	3.577	.360		9.95	.00			
	Architects Personal Attributes	.051	.088	.047	.578	.56	1.000	1.00	0

	(Willingness to listen to Clients such as first time commercial developers)							
a. Dependent Variable: Clients Satisfaction Indicators: Application of strategic thinking to discover and recognise new patterns (optimal client satisfaction focus, proactive professional advice to clients especially first time developers)								
Sub. Q5	(Constant)	3.017	.296		10.204	.000		
	Architects Personal Attributes (Passion for work by making sure that the same desire and ambition to succeed is present, even when faced with pressure)	.267	.279	.124	3.536	.001	1.000	1.000
a. Dependent Variable: Clients Satisfaction Indicators: Communication of professional standards, principles to the application team for good project delivery								
Sub. Q6	(Constant)	2.890	.321		9.000	.000		
	Architects Managerial Abilities: ensure accurate, comprehensive drawings, specifications schedules and documentations	.283	.081	.275	3.485	.001	1.000	1.000

a. Dependent Variable: Client Satisfaction Indicators: Exhibiting excellent Listening skills (eg. listening to clients projects needs and other team players in a construction project)

Summary and Conclusion of Findings

The aim of this question was to establish the level of client satisfaction on architects' personal attributes or competencies critical to satisfying Clients on commercial projects. Statistics indicate that the majority (over 73.0%) agreed to architects possess personal attributes as competencies in: Responsiveness in their work (giving special attention to clients' interests, Personality in their work (Pleasantness of providing a service to a client, Adaptability in their work (Being ready to adapt designs and workloads when faced with adversity (e.g. Change in plans and projects) and Willingness to listen to clients such as first time commercial. However, others (10%) indicated disagreement on architects personal attributes in: showing passion for work (making sure that the same desire and ambition to succeed is present, even when working under pressure and in showing creativity and possessing the ability to look at things differently. This is also consistent with some of the interviewees who indicated that Zambian architects lack the ability to look at design matters from different perspectives different from the conventional line of thinking.

Recommendations

There is need for a coordinated approach in tackling issues pertaining to competencies of local architects. This may be done through unveiling appropriate experiences and personal attributes such as critical thinking, creativity and interpersonal skills especially with clients to ensure delivery of desired construction project outcomes.

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