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RESEARCH ARTICLE

Measures for Curbing Unethical Practices among Construction Industry Professionals: Quantity Surveyors' Perspective

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Abstract

Unethical practices have been a reoccurring menace in the construction industry globally, with its negative impact reported in existing studies. While several studies have explored issues touching on ethics, ethics compliance and unethical practices within the construction industry, the problems persist especially in developing countries. It is based on this notion that this study assessed the possible measures that could help curb unethical practices in the construction industry with specific reference to Quantity Surveyors (QS). The study adopted a quantitative approach with structured questionnaires used to garner information from registered QS in Nigeria. Data analysis was done using relevant descriptive and multivariate analysis. The reliability of the instrument used was also tested using Cronbach alpha test. The findings revealed that while QS are no strangers to unethical practices, most cases are not reported to the appropriate authorities. The most prevalent of these practices are payment-related and contract-related. To curb these practices, random inspections and development of ethical

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compliance, ensuring a good reporting and punishment system, and increase ethical awareness through QS organised programmes are needed. The findings of this study would assist the professional bodies and organisations within the industry to effectively enforce ethical conduct among their members and staff.

Keywords

Professional Ethics; Construction Industry; Questionable Practices; Unethical Practices; Quantity Surveyors

Introduction

The construction industry contributes economically to the development of the economy of countries through the provision of infrastructure and the creation of job opportunities (Hassim, Kajewski and Trigunarsyah, 2010; Adnan, et al., 2012; Aigbavboa, Oke and Tyali, 2016). Just like every other developing country, this industry is seen as one of the most important industries as it provides buildings and infrastructure to every sector of the Nigerian economy (Oke, Aghimien and Aigbavboa, 2017). More so, the industry contributes significantly to the country's gross domestic product (GDP) and employment rate (Saka and Lowe, 2010). Unfortunately, the construction industry, particularly in developing countries has been characterised by poor services as a result of several challenges facing the industry. Significant of these challenges is the questionable behaviour of the industry's practitioners (Ho, 2011; Hosseini, et al., 2019; Ikuabe, 2015; Sohail and Cavill, 2008; Yap, et al., 2020). These questionable behaviours are unethical practices that contradict the norms of the different professions represented in the industry (Wold, Lædre and Lohne, 2019). According to Adnan, et al. (2012) and Shah and Alotaibi (2017), the industry can only thrive and perform optimally when good ethical practices are put in place. However, this is not the situation as a high prevalence of unethical practices within the construction industry has been noted in past studies (Ho, 2011; Shah and Alotaibi, 2017). Unethical practices are reportedly detrimental not just to the industry but also to the economy and human resources of countries worldwide (Aigbavboa, Oke and Tyali, 2016; Olatunji, et al., 2016; Oyewobi, et al., 2011). Maseko (2017) reported that unethical practices tend to give the industry a bad reputation. Furthermore, Olatunji, et al. (2016) reported that such practices distort the entire construction process, hinder free play of market forces and discourages investors from investing in the industry. As a result, there has been a call for ethical practices within the industry (Vee and Skitmore, 2003).

By nature, the construction industry is unique with a complex and fragmented structure involving various professionals working together to execute projects (Behm, 2008; Chartered Institute of Building, 2013). This nature of the industry has led to competitive behaviour among construction participants. Although several reasons have been propounded for the unethical behaviour of these industry participants in past studies (Adnan, et al., 2012; Aigbavboa, Oke and Tyali, 2016; Adeniyi, Adegbembo and Ojo, 2018; Yap, et al., 2020), the fact remains that construction participants, especially the professionals are expected to deliver projects with a high level of professionalism (Inuwa, Usman and Dantong, 2015). Unfortunately, this is not the case in the industry as despite the extant laws, regulations, guidelines and code of ethics to guide the conduct of construction professionals, unethical practices still abound in the industry (Vee and Skitmore, 2003; Chilipunde and Kaima, 2015). The occurrence of these unethical practices has been reported both in developed countries like Australia and the United Kingdom (Vee and Skitmore, 2003; CIOB, 2013; Brown and Loosemore, 2015) and developing countries such as Malaysia (Adnan, et al., 2012), Saudi Arabia (Shah and Alotaibi, 2017), South Africa (Aigbavboa, Oke and Tyali, 2016), Bostwana (Legae and Adeyemi, 2017), Zambia (Mukumba and Muya, 2013; Zulu and Muleya, 2019) and Kenya (Mathenge, 2012). The situation is no different in Nigeria where the significant occurrence of unethical practices has been observed within the construction industry (Oyewobi, et al., 2011; Adeyemo and Amade, 2016; Ameh, 2018).

One crucial profession that has gained significant attention within the construction industry is the quantity surveying profession. Quantity Surveyors (QS) are always expected to exhibit 'top-notch' professionalism rooted in sincere ethical conduct (Olatunji, et al., 2016). This expectation is not unconnected with the QS involvement with the financial aspect of construction projects. Despite this expectation, the profession is not free of questionable practices. While the profession has gained some attention in past research in Nigeria, most of these studies have been on the implementation of code of ethics, and the prevalence, effects, and outcome of unethical practices within the industry (Olatunji, et al., 2016; Oke, Aghimien and Aigbavboa, 2017; Akinrata and Ogungbile, 2018; Akinrata, Ogunsemi and Akinradewo, 2019; Akpomiemie, Adedokun and Aje, 2018). In a quest to see the reduction of unethical practices within the Nigerian construction industry, this study explored the occurrence of unethical practices among QS, the most prevalent unethical practices, and the possible measures needed to curb these unethical practices. The study makes a significant contribution to the existing body of knowledge as it adopts a first-generation multivariate analysis in giving a clear view of the prevalent unethical practices and the measures needed to curb these unethical practices. The findings provide a reasonable insight needed by the quantity surveying professional body to effectively enforce its code of ethical conducts on its members. It also serves as an ideal platform for researchers who wish to explore this area of research further. The following sections of the paper include the review of related studies, the research methods, analysis and discussion, discussion of main findings and the conclusion drawn from the study's findings.

Theoretical Background

Unethical practice is an act that has harmful effects on others and is legally and morally unacceptable to a broader community (Gino, 2015). While several studies on unethical practices express it in different terms, the idea remains the same. CIOB (2013), Stansbury and Stansbury (2018), Vee and Skitmore (2003), and Zou (2006) all portrayed unethical practices as corruption in their studies. According to Stansbury and Stansbury (2018), unethical practices are not restricted to certain countries or projects; but cut across all countries and construction projects. Lee and Cullen (2018) noted that the construction industry is the most fraudulent and corrupt globally. This is because construction projects are generally significant, complex and involve large amounts of funding. Unethical practices occur at all stages of construction projects – planning and design, pre-qualification and tender, project execution, operation and maintenance (Adnan, et al., 2012; CIOB, 2013; Stansbury and Stansbury, 2018). However, Ameh (2018) further stressed that the contractor pre-qualification, tendering procedure and award of contract stages are the construction project stages most prone to unethical practices.

The QS has been noted to be the most susceptible to unethical conduct within the construction industry. This is because they are responsible for delivering construction projects within the estimated budget (Ameh and Odunsami, 2010; Ameh, 2018). They attract lots of attention within the construction industry and are expected to display professionalism founded on ethical conduct (Olatunji, et al., 2016). Unfortunately, QS are not immune to the unethical practices prevalent within the industry. This has been attributed to issues such as excessive love for money, unrealistic performance target and economic hardship (Adeniyi, Adegbembo and Ojo, 2018). Within the broader construction industry, unethical practices exist due to several factors such as greed (Aigbavboa, Oke and Tyali, 2016), conflict of interest among construction professionals and stakeholders (Shah and Alotaibi, 2017), cultural practices and the economic climate (Sohail and Cavill, 2008), nepotism and self-interests (Auoad, 2018).

Past studies have revealed some of the unethical practices prevalent within the construction industry of most developing countries. Bowen, Edwards and Cattell (2012) noted unethical practices such as collusive tendering, bribery, professional negligence, fraudulent behaviour, dishonesty and unfairness behaviour to be common within the Construction industry in South Africa. In Malaysia, Adnan, et al. (2012) noted issues such as cover pricing, which involves a contractor bidding for a job with the intent of losing it. Other issues such as late and short payments, and unfair treatment of contractors in negotiations were also highlighted. In Saudi Arabia, Shah and Alotaibi (2017) observed issues bordering on bribery, receiving gifts and conflicts of interest. The story is not different in Zambia as issues such as fraudulent qualifications, prequalification manipulation, disclosure of lowest quotation, use of poor-quality materials, and increased variation claims are all evident in the country's construction industry. A similar observation was made by Zulu and Muleya (2019), who noted unethical issues such as bribery and corruption.

Concerning QS, Ferrell and Weaver (1978) have earlier noted that QS tends to reveal trade secret in exchange for personal gains and exaggerate their professional services to potential clients for better pay. Olatunji (2007) noted that some QS go as far as releasing confidential contract secrets in return for personal gain. Issues such as consulting QS pricing bill of quantities for contractors to bid and cover-up of corrupt practices of senior colleagues are evident within the profession. Furthermore, Olatunji et al. (2016) highlighted issues such as deliberate concealment of errors, doctoring of contract figures, and falsification of reports. In the same vein, Ameh (2018) noted that QS tends to over-measure quantities, inflate the cost, and also over-measure day works and variations. Based on the preceding, the unethical practices in Table 1 relating to quantity surveying profession were evaluated in this study.

Table 1. Unethical practices of QS

Unethical practices	Authors
Deliberate concealment of errors	Olatunji, et al. (2016)
Conflict of interest	Shah and Alotaibi (2017)
Doctoring contract figures	Olatunji (2007); Olatunji, et al. (2016)
Falsification of reports or records	Olatunji (2007); Aigbavboa, Oke and Tyali (2016); Olatunji, et al. (2016)
Receiving gifts to compromise	Legae and Adeyemi (2017); Shah and Alotaibi (2017)
Conniving with unscrupulous contractors	McDonald and Zepp (1988); Vee and Skitmore (2003); Olatunji (2007); Usman, et al. (2012)
Exaggerating services for better payment from clients	Ferrell and Weaver (1978)
Providing trade secrets for personal gain	Ferrell and Weaver (1978); Mukumbwa and Muya (2013)
Protecting the illegal acts of other consultants	Olatunji (2007); Olatunji, et al. (2016)
Claiming for under-performed works	Lee and Cullen (2018)
Over-pricing or under-pricing Bill of Quantities	Vee and Skitmore (2003); CIOB (2013); Shah and Alotaibi (2017)
Submission of inflated variation	Mukumbwa and Muya (2013)
Submission of false quotation	Lee and Cullen (2018)
Incompetent professional advice	Ferrell and Weaver (1978)

To put a check on some of these unethical practices, several suggestions have been put forward in past studies. For instance, Aouad (2018) and Stansbury and Stansbury (2018) stressed that leaders of governments, professional institutions, contractors, consultants, and organisations working within the construction industry need to show the necessary leadership and implement the necessary preventive measures against unethical practices. Curbing unethical practices also requires a dogged political will by the government of nations, considering that several trillions of dollars are spent annually worldwide to procure construction works (CIOB, 2008). Also, professional bodies instituted within the construction industry must play the role of enhancing construction professionals' integrity and respectability as they practice their trade (Vee and Skitmore, 2003). They can do this by enacting laws to discipline erring members (Oyewobi, et al., 2011) and prioritise ethical discourse at technical sessions, public lectures, and seminars (Akpomiemie, Adedokun and Aje, 2018; Olatunji, et al., 2016). Other measures advocated include transparency, codes of conduct, civil society participation, whistle-blower protection, reducing incentives for corruption, conflict of interest rules, integrity pacts and debarment, and rigorous prosecution (Oyewobi, et al., 2011). Adeniyi, Adegbembo and Ojo (2018) and Akinrata and Ogungbile (2018) further recommended that strict discipline such as banishment from practice be meted out on construction professionals caught in unethical practices. Ameh and Odusami (2010) stressed prompt and adequate remuneration for services rendered by construction professionals. Aigbavboa, Oke and Tyali (2016) and Shah and Alotaibi (2017) recommended reviewing, monitoring and reporting unethical practices, developing honest and ethical construction culture, initiating constant and random ethics checks, constant supervision of ethics, verbal promotion of ethical environment, and increasing employees' benefits. Based on the identified measures, the possible ways of curbing unethical practices among QS were assessed using the variables in Table 2.

Table 2. Measures for curbing unethical practices of QS

Measures	Authors
Leadership by example	Aouad (2018); Stansbury and Stansbury (2018)
Discipline erring QS	Oyewobi, et al. (2011)
Organise technical sessions, public lectures and seminars on QS code of ethics	Olatunji, et al. (2016); Akpomiemie, Adedokun and Aje (2018)
Good whistle-blowing mechanism	Oyewobi, et al. (2011)
Development of ethical compliance culture by NIQS	Aigbavboa, Oke and Tyali (2016); Shah and Alotaibi (2017)
Ban from practice	Adeniyi, Adegbembo and Ojo (2018); Akinrata and Ogungbile (2018)
Random and regular checks of Quantity Surveyors involved in construction projects	Aigbavboa, Oke and Tyali (2016); Shah and Alotaibi (2017)
Verbally promote an ethical environment	Aigbavboa, Oke and Tyali (2016); Shah and Alotaibi (2017)
Increase Quantity Surveyors benefits	Ameh and Odusami (2010); Aigbavboa, Oke and Tyali (2016); Shah and Alotaibi (2017)
Consistent training and retraining of professionals on current trends in ethical issues	Olatunji (2007)

Research Method

In unearthing the measures needed in curbing unethical practices among construction professionals regarding QS as a case study, this study took a positivist stance that informed the use of a quantitative approach. The data collection instrument was a structured questionnaire designed using the unethical practices and measures identified from the literature review. The choice of a questionnaire was based on its ability to cover a broader range of participants within a short period. Moreover, this instrument allows objectivity and quantifiability to be achieved in most social science research (Tan, 2011; Sekaran and Bougie, 2016). Furthermore, this data collection method was adopted as it provides a high level of anonymity for respondents to respond to sensitive issues like ethics (Lee and Cullen, 2018). The first section of the questionnaire assessed the background of the respondents. The answers gathered were used to evaluate the response of the respondents in the other sections. Section two explores the occurrence of unethical practices among these set of professionals. The respondents were required to assess the occurrence of unethical practice within their organisations and how such an incident was addressed. Section three assessed the most prevalent unethical practices, while the last section sought answers to the measures needed to curb these unethical practices. The study population was registered QS in the Federal Capital Territory (Abuja) and Lagos. The choice of using both areas in the country lies in the fact that while Abuja is the administrative centre, Lagos is a commercial centre of the country. Both locations house most construction companies and professional bodies in the country, with many construction projects being executed regularly (Aghimien, Oke and Aigbavboa, 2018). Due to the difficulty in getting the total number of registered professionals from the registration body, a snowball and convenience sampling approach was adopted. The Snowball approach, based solely on referrals (Heckathorn, 2011), was adopted to help locate registered QS within the two locations. Also, due to the sensitivity of the topic under review, the convenience sampling technique was used based on the availability, accessibility and willingness of the identified respondents to participate in the study. The respondents were assured that data from the study would be strictly confidential with no personal details such as names required. Based on the approach adopted, the exact number of questionnaire distributions becomes difficult, making calculating a total response rate practically impossible (Chan, Darko and Ameyaw, 2017; Oke et al., 2020). A total of 40 responses were retrieved from respondents and usable for analysis. This low response rate aligns with the study conducted by Tow and Loosemore (2009) in Lee and Cullen (2018), who reported difficulty obtaining high response rates on research in ethics as several respondents were unwilling to respond to questions on ethics.

Data gathered was analysed using percentage and frequency for the background information and the occurrence of unethical practices among Quantity Surveyors. The sections on the most prevalent unethical practices and the measures needed in curbing the occurrence of these unethical practices were first analysed using Shapiro-Wilks (S-W) test to determine the normality of the data gathered and the type of analysis to be conducted. This test was adopted against the Kolmogorov-Smirnov (K-S) as the sample size falls below 2000. Ghasemi and Zahediasl (2012) have earlier suggested that the S-W test is most suitable when the sample is below 2000, while K-S is suitable when the sample size is larger than 2000. The analysis revealed a significant p-value of below 0.05 for all variables under both sections, implying that the data gathered is non-normal. Thus, only analysis that does not require the data to be normally distributed can be used for further analysis. Aside from the normality test, the validity of the research instrument was also tested using Cronbach alpha test. Moser and Kalton (1999) have noted that the closer an alpha value is to 1, the more reliable the research instrument. The alpha value of 0.806 and 0.784 was derived for the unethical practices and the measures. This result implies that the questionnaire used was reliable. Since the questionnaire used was reliable and the data gathered are not normally distributed, a non-parametric test was conducted to see if there is any significant difference in Quantity Surveyors' perspective depending on the type of organisation they are employed in. This was done based on the assumption that respondents are from different organisations (consulting, contracting, and public service); hence, there is a tendency to be influenced by respondents' type of organisation in their rating of the variables under assessment. Kruskal-Wallis H-Test, which is a non-parametric test used in determining the significant difference in the response of 3 or more groups, was employed. The assumption for this test is that when the derived p-value is above 0.05, there is no significant difference in the view of the three groups of respondents. However, when the derived p-value is less than or equal to 0.05, a significant difference exists among the respondents in the rating of that variable. Table results of this test are given in Tables 4 and 5.

Since the study assessed fourteen different unethical practices and ten possible measures for curbing them, the study employed exploratory factor analysis (EFA) to outline the most common unethical practices and measures needed by grouping the assessed variables into more manageable subscales. Field (2000) has described EFA as the process of identifying the best fitting group of variables to define a phenomenon clearly. The use of this type of first-generation multivariate analysis in most construction-related research has become common in recent times due to its ability to create factor reduction and clustering, thereby giving valuable insight to data (Brown, 2015) as against the use of just mean item score. One of the significant challenges of conducting EFA identified by past studies is the sample size required. While some have advocated a large sample (Norris and Lecavalier, 2010; Tabachnick and Fidell, 2007), others have noted that with a good Kaiser–Meyer–Olkin (KMO), a significant p-value for Bartlett test of sphericity, and high communalities, the sample size might not be overly relevant (Field, 2000; Preacher and MacCallum, 2002). The KMO test conducted gave a value of 0.847 and 0.631 above the 0.6 thresholds needed for suitable EFA data. The Bartlett test revealed both objectives are significant at 0.000 while their communalities ranged from 0.509 to 0.866 for the unethical practices and 0.437 to 0.795 for the measures for curbing unethical practices. These results, coupled with the high Cronbach alpha values generated, revealed that the data gathered irrespective of the sample was suitable for EFA to be conducted. Based on this notion, EFA was conducted through principal component analysis (PCA) using varimax rotation.

Analysis and Findings

RESPONDENT'S BACKGROUND INFORMATION

The analysis of the data gathered on the background of the respondents revealed that more male QS (82.5%) participated in the study, with only 17.5% being female. This result further affirms the prevalence of male QS in the industry (Okeke, et al., 2018). The average age of these respondents is calculated as 37.2 years. The majority of the respondents work for consultancy firms (45%), while 32.5% and 22.5% work for contracting firms and government establishments, respectively. In terms of years of experience, only 12.5% have below five years, while 87.5% have above five years in the industry. On average, the respondents possess 10.7 years of working experience in the construction industry. Based on the result gathered, it is evident that the different types of organisations wherein QS function are well represented in the survey. These respondents are well equipped as they are all registered members of the profession and have worked within the industry for a considerable long time. Thus, the response gathered can be relied upon as they were given based on experience.

UNETHICAL PRACTICES AMONG QUANTITY SURVEYORS

In exploring the occurrence of unethical practices among QS in the study area, the result in Table 3 revealed that 90% of the respondents (36) reported that they had witnessed at least a form of unethical practice in the cause of executing their professional duties. Only 10% (4) have not experienced such scenarios. Out of the 90% of professionals that have witnessed some form of unethical practices, only 20% (8) claimed the unethical practice was reported. The remaining 70% (28) noted that these unethical behaviours were never reported to the appropriate authorities. One respondent claimed the incident was reported to the professional body. The remaining cases were reported to the management of the organisation wherein the affected QS works. In response, in two of the cases reported, the culprits were punished, while in the remaining five, the culprits were sensitised on the QS ethics, while no action was taken in one.

Table 3. Experiencing a form of unethical practice

		Freq.	%
Experiencing a form of unethical practice	Yes No Total	36 4 40	90.0 10.0 100.0
Reporting Unethical Practices	Yes No Total	8 28 36	20.0 70.0 90.0
Authority reported to	Organisation where the Quantity Surveyor works Nigerian Institute of Quantity Surveyors Never reported Total	7 1 28 36	17.5 2.5 70.0 90.0
The outcome of the Cases of Unethical Practices Reported	The offender was penalised or punished The offender was sensitised on QS ethics No action was taken on the offender Total	2 5 29 36	5.0 12.5 72.5 90.0

PREVALENT UNETHICAL PRACTICE WITNESSED AMONG QUANTITY SURVEYORS

In assessing the unethical practices that are most common among QS in the study area, 14 practices were identified from the review of extant literature. They were presented to the respondents to rate on a 5-point Likert scale based on the level of occurrence. Since these respondents were from different types of organisation, Kruskal-Wallis H-test was used to assess the difference in their view. The result in Table 4 revealed no significant difference in the view of the QSs from consulting, contracting and public services in the rating of 12 out of the 14 unethical practices assessed. However, there is a disparity in their view regarding the occurrence of QS conniving with contractors and exaggerating services for better payment from clients. This is because a significant p-value of less than 0.05 was derived for both variables. This implies that these respondents view the occurrence of these two unethical practices differently. The factorability test conducted revealed a KMO value of 0.846 and a significant Bartlett test, thus confirming the suitability of EFA for the data gathered. Using PCA through varimax rotation, the result revealed two extractions with eigenvalue of 1 and above. Both extractions account for 70.4% of the total variance explained. This is higher than the 50% threshold suggested by Stern (2010). To further affirm the number of factors to retain, studies have suggested a look at the scree plot to determine the point of change in the shape of the graph (Pallant, 2005; Norris and Lecavalier, 2010). Figure 1 revealed that only two factors are worth retaining as a change in the elbow can be seen at the second factor.

As seen in Table 4, the first extracted principal component accounts for 61.3% of the total variance explained, thus implying that the variables under this factor are the most occurring unethical practices among QSs in the study area. These variables are submission of inflated variation, claiming for under-performed works, protecting other consultants' illegal acts, submitting a false quotation, and over-pricing or under -pricing bill of quantities. This component was subsequently named "payment-related issues" due to the similarity in the variables. The second principal component accounts for just 9.1% of the total variance explained. The components have variables such as doctoring contract figures, conflict of interest, providing

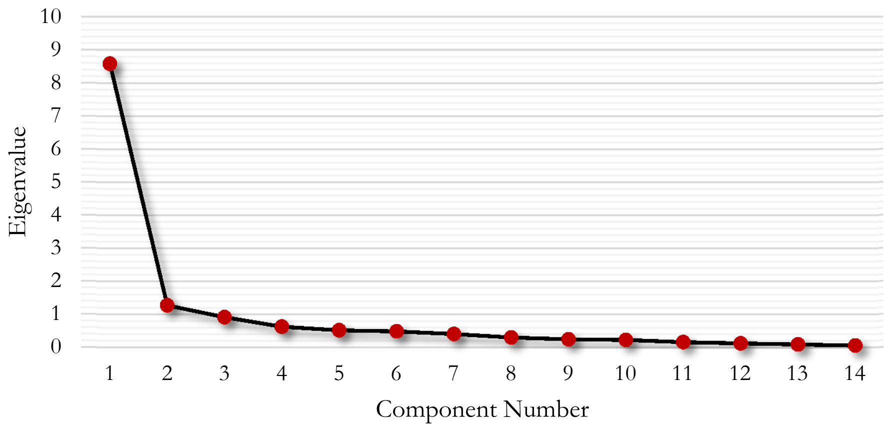

Figure 1. Scree plot for unethical practices of QS

trade secrets for personal gain, deliberate concealment of errors, conniving with unscrupulous contractors, falsification of reports or records, exaggerating services for better payment from clients, incompetent professional advice, and receiving gifts to compromise. Based on the similarity in these variables, this component was subsequently named "contract-related issues".

Table 4. Rotated Component

Unethical Practices	Component		Cumm.	K-W	
	1	2	Extract.	X^2	Sig.
Submission of inflated variation	0.901		0.866	3.154	0.207
Claiming for under-performed works	0.874		0.841	2.711	0.258
Protecting the illegal acts of other consultants	0.845		0.777	0.576	1.103
Submission of false quotation	0.767		0.788	2.887	0.236
Over-pricing or under-pricing bill of quantities	0.758		0.760	2.692	0.260
Doctoring contract figures		0.815	0.693	1.147	0.564
Conflict of interest		0.804	0.666	1.188	0.552
Providing trade secrets for personal gain		0.747	0.697	1.553	0.460
Deliberate concealment of errors		0.689	0.634	1.442	0.486
Conniving with unscrupulous contractors		0.662	0.776	6.263	0.044**
Falsification of reports or records		0.639	0.629	0.447	0.800
Exaggerating services for better payment from clients		0.613	0.509	1.640	0.441**
Incompetent professional advice		0.601	0.669	2.220	0.330
Receiving gifts to compromise		0.537	0.553	1.789	0.409

Table 4. continued

Unethical Practices	Component		Cumm.	K-W	
	1	2	Extract.	X^2	Sig.
Cronbach Alpha		0.806			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.847			
Bartlett's Test of Sphericity	Approx. X^2	462.55			
	df	91			
	Sig.	0.000			

** sig at p=0.05; X^2 = Chi sq.; Cumm = communalities; K-W = Kruskal-Wallis
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

MEASURES USED IN CURBING UNETHICAL PRACTICES AMONG QUANTITY SURVEYORS

In a bid to proffer possible solutions towards curbing unethical practices of QS, ten measures were extracted from the literature review. They were presented to the respondents to rate on a 5point Likert scale based on their significance level. Kruskal-Wallis H- test revealed no significant difference in the respondents' view from the three different types of organisation. This is because all the assessed measured had a significant p-value of above 0.05, thus implying a convergent view among the respondents (see Table 5). Furthermore, the factorability test revealed a KMO value of 0.631 and a significant Bartlett test, thus confirming the suitable of EFA for the data gathered. EFA analysis revealed three extractions with eigenvalue of 1 and above. All three extractions account for 68.2% of the total variance explained. Furthermore, a look at the scree plot in figure 2 revealed that only three factors should be retained as the curve tends to flatten after the third factor.

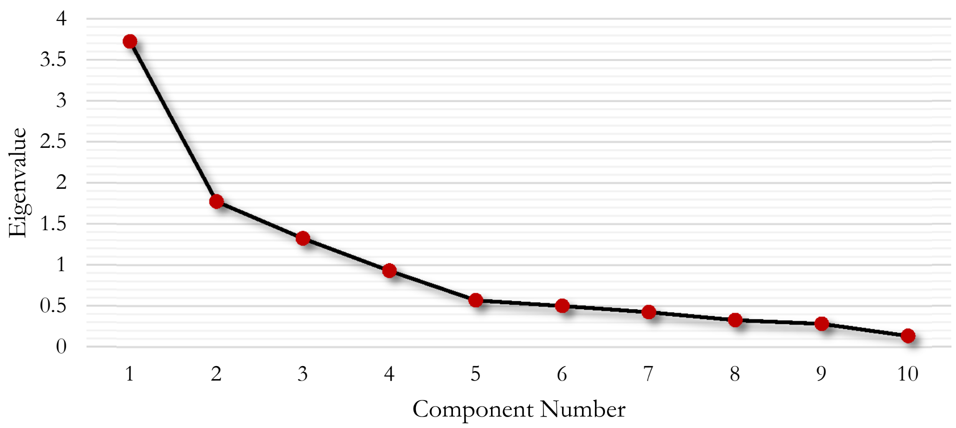

Figure 2. Scree plot for measures for curbing unethical practices of QS

As seen in Table 5, the first extracted principal component accounts for 37.2% of the total variance explained. This component has four variables loading on it, and these are random and regular checks of QS involved in construction projects, NIQS development of ethical compliance culture, increase QS benefits, and consistent training and retraining of professionals on current trends in ethical issues. This component is seen as "random inspections and development of ethical compliance". The second principal component accounts for 17.7% of the total variance explained with variables such as punish/prosecute erring QS, suitable whistle-blowing mechanism, and ban from practice. Based on these variables' similarity, the component was subsequently named "ensuring good reporting and punishment system". The last extracted components account for 13.2% of the total variance explained and have three loading variables. These variables are organising technical sessions, public lectures and seminars on QS code of ethics, verbally promote an ethical environment, and leadership by example. This component was subsequently named "increase ethical awareness through QS organised programmes."

Table 5. Rotated Component

Measures	Component			Cumm.	K-W	
	1	2	3	Extract.	X^2	Sig.
Random and regular checks of QS involved in construction projects	0.838			0.789	0.139	0.933
NIQS development of ethical compliance culture	0.836			0.643	5.499	0.052
Increase QSs benefits	0.762			0.615	0.217	0.897
Consistent training and retraining of professionals on current trends in ethical issues	0.570			0.629	1.859	0.395
Punish/prosecute erring QS		0.871		0.783	2.827	0.243
Good whistle-blowing mechanism		0.846		0.771	1.926	0.382
Ban from practice		0.647		0.639	0.281	0.869
Organise technical sessions, public lectures and seminars on QS code of ethics			0.890	0.795	2.412	0.299
Verbally promote an ethical environment			0.553	0.722	4.073	0.131
Leadership by example			0.526	0.437	5.847	0.054
Cronbach Alpha		0.784				
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.631				
Bartlett's Test of Sphericity	Approx. X^2	152.44				
	df	45				
	Sig.	0.000				

** sig at p=0.05; X^2 = Chi sq.; Cumm = communalities; K-W = Kruskal-Wallis

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization

Discussion of Main Findings

Based on the analysis of the data gathered, it is evident from the study that the QS profession is not exempted from unethical practices. This is because the majority of the professionals in the study have witnessed one form of unethical practice or the other. This finding further affirms the submissions of Ehsan, et al. (2009) and Vee and Skitmore (2003) that it is rare to see a construction professional that has not experienced or witnessed a form of unethical practice. Unfortunately, most of these unethical issues are not reported and as such, appropriate approach is not engaged. From the findings of this study, most of the cases reported were handled through sensitising the culprits on the ethics of the profession. This could be seen as a mere "slap on the wrist", and the possibility of future involvement of these set of QS in unethical practices is unsure.

The most prevalent unethical practices in the profession can be seen as payment-related and contracts-related issues. The issue of corruption, most especially concerning payment, has been noted in past studies (Vee and Skitmore, 2003; CIOB, 2013). Therefore, it is not surprising to see payment related issues emanating as a key aspect of unethical practices of QS in the study area. Recall that QS are prone to unethical practices due to their involvement in the financial aspect of construction (Ameh and Odunsami, 2010). The findings of this study further confirm the submission of Ameh (2018) that QS have the tendency to inflate project cost. The findings are also in line with Mukumbwa and Muya (2013), who noted the issue of inflation of variation cost in Zambia; and Lee and Cullen (2018), who noted the submission of false quotation and claiming for under-performed works in the United Kingdom. Furthermore, in confirmation of Olatunji et al.'s (2016) submission, the finding of this study observed that QS tend to protect other colleagues' corrupt acts. While payment related issues seem to be the most occurring unethical practices, issues relating to contracts also abound within the profession. For instance, crucial factors such as the doctoring of contract figures, concealment of errors, and falsification of reports identified in Olatunji (2007) and Olatunji, et al. (2016) are part of the critical issues under contract related factors. The findings further affirm the submissions of Ferrell and Weaver (1978) and Mukumbwa and Muya (2013); who noted that some professionals can go to the extent of divulging trade secrets for personal gains.

The findings revealed that random inspections and development of ethical compliance, ensuring a good reporting and punishment system, and increasing ethical awareness through QS organised programmes need to be given adequate attention to ensure the reduction of these unethical practices. This key finding follows the submissions of Aigbavboa, Oke and Tyali (2016) and Shah and Alotaibi (2017), who advocated initiating constant and random ethics checks on professionals. The Nigerian Institute of Quantity Surveyors (NIQS) can achieve this through the delegation of special task force saddled with the responsibility of routine check-up of members. Organisations can also benefit from the adoption of this practice in a bid to keep their workers in check. Oyewobi et al. (2011) advocated the punishment of erring professional. The finding of this current study is in line with this submission as ensuring a good reporting and punishment system is seen as a significant measure that can help curb unethical practices. However, while banning defaulting QS from practising as suggested by Chilipunde and Kaima (2015) might prove too stiff a price, ensuring proper punishment such as suspension, pay deductions, demotions and the likes can go a long way in instilling caution in the offender. The role of ethical awareness cannot be overemphasised as past studies have shown the need for continuous enlightening of professionals regarding ethical conducts. Findings of this study reveal the need to increase ethical awareness through organised programmes to reduce questionable behaviours among QS (Aigbavboa, Oke and Tyali, 2016; Olatunji, et al., 2016; Shah and Alotaibi, 2017; Akpomiemie, Adedokun and Aje, 2018).

Conclusions

In the quest to find a way to curb the unethical practices of construction professionals, this study explored the occurrence of unethical practices among QS in the Nigerian construction industry. The study also assessed the prevalent unethical practices and the measures needed for curbing these unethical practices. Using data gathered from registered QS, the study concludes that QS in Nigeria are no strangers to unethical practices. Unfortunately, most of the cases observed are not reported to the right authorities. The implication of this result is the continuous spread of unethical practices by unscrupulous QS within the industry. The most prevalent questionable practice of these sets of professionals can be seen to relate to payment and contract issues. Since QS are involved in the financial dealings of construction projects and in contract administration, falling prey to unethical behaviours is not unlikely. To curb these unethical practices, random inspections and development of ethical compliance, ensuring a good reporting and punishment system, and increased ethical awareness through QS organised programmes are necessary.

It is believed that the findings will assist both the quantity surveying professional body (NIQS) and other professional bodies in the industry in effectively enforcing their ethical conducts among their members. By revealing the major unethical practices that these professionals are involved in, adequate measures identified can be applied accordingly. Furthermore, the study has revealed that unethical practices are not reported in most cases. Therefore, organisations and professional bodies will need to put systems in place to ensure proper reporting is done. This can be achieved through employing proper whistle-blowing mechanisms as well as sensitising the industry participants on the need to uphold good ethical standards and report anyone failing in this regard. While this study contributes significantly to the body of knowledge, care must be taken in generalising its findings. For example, while the study was conducted in two major states of the country, future studies would benefit more from a broader coverage which will invariably lead to much larger sample size than what is seen in the study. Also, this study adopted a quantitative approach; future studies adopting a qualitative or a mixed-method approach can be conducted to give a more robust research approach to the subject.

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