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Challenges of using Softwares in Training Quantity Surveying Students in Auchi Polytechnic, Auchi, Edo State, Nigeria

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ABSTRACT

The explosive growth of the software application has had unquantifiable impact on business systems and processes. The aim of this study is to investigate the challenges of using soft wares in training Quantity Surveying Students in Auchi Polytechnic, Auchi, Nigeria. The study adopted a quantitative survey design with a questionnaire used to solicit information from the respondents. One hundred and twenty six (126) questionnaires were distributed using random sampling technique and; one hundred and five (105) questionnaires were returned and considered suitable for analysis. Data analysis was done using percentage and mean item score. Findings revealed that Qcloud, WinQS and DimensionX are the major soft wares used in training Quantity Surveying Students. Also, Inadequate funding of ICT by institution is the major challenge confronting the use of Quantity Surveying soft wares in training Quantity Surveying Students. The study revealed that inability to secure good jobs in the Nigerian construction industry is the major impact on Quantity Surveying Graduates. The study identified adequate budget for software application by the institution training and retraining of teaching staff members as the major strategies for mitigating the challenges facing Quantity Surveying Students in software training. It recommended that the government should subsidies ICT facilities for teachers and students to enable teachers and students to buy their personal systems.

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1. INTRODUCTION

The explosive growth of the software application has had unquantifiable impact on business systems and processes. The global acceptance and widespread adoption of Quantity Surveying software has accelerated the dimensions of competition not only among organisations globally but among professions locally. According to Karunasena et al., (2015), the profession has shaped its path to suit and adjust for the threat and grab the opportunities of Information Communication Technology ICT with wide hands. The Quantity Surveyors ability to avail themselves with the emerging opportunities provided by the advent of Information

Communication Technology depends on the adoption of new technologies (Aliu et al., 2019). This had led to the development of various quantity surveying dedicated software packages for efficient and effective performance of the practice's operation and service delivery (Ajegbelen, 2016). Computer software has promised to be a reliable tool in all spheres of human endeavour. Chukwuyenum (2013) predicts that the evolution of Information Technology will have a profound impact on how organisations in the Architectural, Engineering and construction industry operate. This is already coming to pass with information technology playing an increasing role in the economy. Also, Quantity Surveying firms have grown more heavily in Nigeria dependent on the successful delivery of information systems. Yet, many estimating and tender analysis software results in systems that do not function as intended, are not used or are never delivered. Adegbembo et al., (2016) asserts that to achieve appropriate business objectives, estimating practices have to make a lot of risky decisions in choosing what applications will be appropriate for the firm in the short, medium and long term scenarios. Apart from these, they also have to decide on choosing appropriate combination of applications for specific tasks as well as decision on their maintenance, technical support and allied supplementation. Regrettably, most estimators are not first-hand software expert. At best, they rely on marketing impulses and persuasions to make decisions on what software package to go for, when and how. This portends a lot of risks for any firm even in purchasing a less productive software package. Paradoxically, there is inadequate knowledge in available resources on how decisions are made on software selection in construction and quantity surveying firms (Chegu et al., 2016). However, some of the challenges of using soft wares in training quantity surveying students are financial constraint, inadequate power supply, inadequate of ICT infrastructure, inadequate computer system, high cost of available soft wares, inadequate knowledge of software usage by quantity surveying lecturers, rigidity of the department to adopt new teaching methods, inadequate of polytechnic syllabus on ICT development, lack of willingness of students to learn ICT and lack of funding of ICT department by the polytechnic (Khaddage et al., 2015; Abiodun et al., 2018).

There are various specialize software's packages that have being identified for performing the array of tasks involved in the practices. These include: etakeoff, vector 8, workmate, master bill, primus takeoff, Autodesk, Quantity take-off, costX dimension, XWinQS, QCloud, ConEst, WinEst and Qsem (Adeleke et al., 2015; Adogbo et al., 2015). Some of the impact of these challenges on the quality of quantity surveying graduates are lack of self-confidence due to inability in handling certain sophisticated tasks, lack of knowledge to work outside the traditional methods and practices, inability to secure good jobs in the Nigerian construction industry and limited ability to meet emerging construction trends (Adedokun et al., 2015; Aluko et al., 2018). According to Onyema (2019) some of strategies for mitigating the challenges facing quantity surveying students in software training are adequate budget for software application by the institution, training and retraining of teaching staff members, developing indigenous soft wares that are cheap and affordable and provision of constant power supply. Therefore, the aim of this study is to investigate the challenges of using software packages in training quantity surveying students. It identifies software packages for training quantity surveying students, assess the challenges confronting the use of softwares in training quantity surveying students and evaluate the strategies for mitigating these challenges. The results of this study are expected to improve the use of software packages in training quantity surveying students.

2. METHODOLOGY

Survey design was adopted for this research. Data was obtained with the use of well-structured questionnaire. The questionnaires were administered directly by the researcher with the assistant of a professional colleague in the study area. A total population of one hundred and twenty six (126) was recorded in the study area, and census was adopted to determine the sample size of the study because census is good for small population. Random sampling of the described population was used for the study because every member stands an equal chance of being selected and it minimises bias. The questionnaire was drawn on a 5-points Likert scale and it was chosen for ease and uniformity of response and the questionnaire comprised only closed ended questions. Questions were asked on the background information of the respondents, quantity surveying soft wares used in training students, challenges confronting the use of soft wares in training quantity surveying

students, impact on quantity surveying graduate and strategies for mitigating the identified challenges facing quantity surveying students in soft wares training. One hundred and twenty six (126) questionnaires were distributed and; one hundred and five (105) were returned and considered suitable for analysis which represented a healthy return rate of eighty three percent (83%). The analysis was aided by the use of statistic package for social science (SPSS) application. Based on the content of the questionnaires, the analysis was divided in to two sections: demographic and main objectives. The background information of respondents was analysed by means of frequency distribution and percentage. Mean item score was used to rank the quantity surveying soft wares used in training students, challenges confronting the use of soft wares in training quantity surveying students, impact on quantity surveying graduate and strategies for mitigating the identified challenges facing quantity surveying students in soft wares training. The premise of decision for the ranking is that the factors with the highest mean item score is ranked 1st and others in such subsequent descending order. The following Equation was used to determine mean:

$$\text{Mean} = (\sum FX)/N \quad (1)$$

Where X is the rating used per column, F is the sample size for each rating and N is the total sample size.

Since a Likert of 5-point scale was employed for the collection of data, the formula can thus be written as:

$$\text{Mean score} = (5F5+4F4+3F3+2F2+F1)/N \quad (2)$$

3. RESULTS AND DISCUSSION

Table 1: Presents summary of background information of respondents. Analysis in Table 1 shows the gender of the respondents, where 60% of the respondents are male while 42% of the respondents are female. Also, 89% of the respondents are single and 11% of the respondents are married. Analysis in Table 1 shows the age range of the respondents, where 35% falls within 21-25 years, 25% falls within 26-30 years, 21% falls within 15-20 years, 10% falls within 31-35 years while 9% falls within 36 years and above.

Table 1: Summary of background information of the respondents

Category	Classification	Frequency	Percent
Gender of respondents	Male	63	60
	Female	42	40
	Total	105	100
Marital status of respondents	Single	93	89
	Married	11	11
	Total	105	100
Age of respondents	15-20	22	21
	21-25	37	35
	26-30	26	25
	31-35	11	10
	36 Years and Above	9	9
	Total	105	100
Academic level of respondents	NDI	6	6
	NDII	17	16
	HNDI	34	32
	HNDII	40	38
	Lecturer	8	8
	Total	105	100

Table 2 shows quantity surveying soft wares used in training students. Analysis in Table 2 reveals quantity surveying soft wares used in training students. As shown in the Table above, all the respondents agree that QS Cloud, win QS, win Est, Vector 8 and are the most commonly identified quantity surveying soft wares used in training students by ranking 1st ,2nd , 3rd , 4th and 5th respectively. The result equally shows that all

the respondents' ranked E takeoff, Qsem, Autodesk Quantity takeoff and primus takeoff as the less frequently used in training students by ranking 10th, 11th, 12th and 13th respectively. The result confirms Adogbo et al., (2015) submission that various specialized software packages are available to perform the array of tasks involved in the training and practices of quantity surveying.

Table 2: identified quantity surveying soft wares used in training students

Identified soft wares	MIS	Rank
Q cloud	4.92	1st
Win qs	4.76	2nd
Win est	4.70	3rd
Vector 8	4.67	4th
Master bill	4.51	5th
Dimension x	4.30	6th
Con est	4.21	7th
Cost x	4.10	8th
Workmate	4.03	9th
Etakeoff	3.64	10th
Qsem	3.21	11th
Autodesk quantity takeoff	3.15	12th
Primus takeoff	2.85	13th

Table 3 presents the challenges confronting the use of soft wares in training quantity surveying students. From the analysis in Table 3, majority of the respondents remarked the following items as the most challenges confronting the use of soft wares in training quantity surveying students and therefore ranked accordingly; inadequate funding of ICT by institution, financial constraint, inadequacy in polytechnic syllabus to learn ICT, lack of willingness of students to learn ICT, inadequate knowledge of software usage by quantity surveying lecturers with their mean scores 4.45, 4.29, 4.25, 4.23, 4.18 and ranked 1st to 5th respectively. While lack of computer laboratory for the department, lack of technical support staff and rigidity of the department to adapt new teaching methods are the challenges confronting the use of soft wares in training quantity surveying students with their mean scores of 3.92, 3.85 and 3.67 respectively. Funding is the key to the successful implementation of ICT programs in the educational institution. Ahmad et al., (2012) buttressed that the budgetary allocation for the implementation of computer education is inadequate in the basic schools and this is affecting the utilization of ICT facilities in the basics schools. In some of the polytechnics, there is dearth of human and material resources for teaching the ICT courses.

Table 3: Identified challenges confronting the use of soft wares in training quantity surveying students

Identified challenges	MIS	Rank
Inadequate funding of ICT by institution	4.45	1st
Financial constraint	4.29	2nd
Inadequacy in polytechnic syllabus on ICT development	4.25	3rd
Lack of willingness of students to learn ICT	4.23	4th
Inadequate knowledge of software usage by quantity surveying lectures	4.18	5th
Inadequate computer systems	4.10	6th
High cost of available soft wares	4.04	7th
Inadequate power supply	3.96	8th
Lack of computer laboratory for the department	3.92	9th
Lack of technical support staff	3.85	10th
Rigidity of the department to adapt new teaching methods	3.67	11th

In a study carried out by Babatunde et al., (2019) and others, they found out that the Quantity surveying programme in Polytechnic faces the problem of inadequacy of ICT resources and had hampered the acquisition of knowledge and skills expected to prepare the learners for the world of work. It was further

corroborated by Aboderin (2015) who pointed out that the most commonly cited reason for lack of technology implementation in the classroom is inadequate professional development and training.

Table 4 shows the impact of the challenges on quantity surveying graduates. Table 4 above shows the impact of listed challenges on quantity surveying graduates. The analysis reveals that inability to secure good jobs in the Nigerian construction industry with a mean item score of 4.55 ranked 1st, followed by inability to compete with other quantity surveying graduates and lack of self-confidence with mean item scores of 4.37 and 4.36 respectively. While low level of performance in the international market and difficulty to take off quantities at a limited time with mean item scores of 4.23 and 4.17 have the least impact on quantity surveying graduates. Although Unemployment is a global phenomenon whereby eligible workforce of a nation is disengaged in the service of the nation. It is not only a serious economic issue but has social implications that affect almost all countries and all people either directly or indirectly. It causes social disquiet and is the harbinger of the spate of crimes, perennial youth unrest and unstable socio-economic structure that has bedevilled several nations. However, good knowledge of ICT can still afford a few professionals the opportunity to secure good jobs in the Nigeria construction industry.

Table 4: Impact of the challenges on quantity surveying graduates

Identified impact	MIS	Rank
Inability to secure good jobs in the Nigerian construction industry	4.55	1st
Inability to compete with other quantity surveying graduates	4.37	2nd
Lack of self confidence	4.36	3rd
Lack of knowledge to work outside the traditional methods and practices	4.35	4th
Limited ability to meet emerging construction trends	4.30	5th
Low level of performance in the international market	4.23	6th
Difficulty to take off quantities at a limited time	4.17	7th

Table 5 presents strategies for mitigating the challenges facing quantity surveying students in software training. Table 5 reveals; adequate budget for software application by the institution ranked first with mean score of 4.40, followed by training and retraining of teaching staff members and developing indigenous soft wares that are cheap and affordable with mean scores of 4.32 and 4.29 respectively. Provision of adequate and durable ICT materials to institutions and call for a review of tertiary institution curriculum to provide adequate ICT training ranked the least with mean score of 4.03 and 3.92 respectively. According to Beggs (2019), one of the top three problems to lecturers‟ use of ICT in teaching was the lack of training. Becta (2017) the issue of training is certainly complex because it is important to consider several components to ensure the effectiveness of the training.

Table 5: Strategies for mitigating the challenges facing quantity surveying students in software training

Identified Mitigating Strategies	MIS	Rank
Adequate budget for software application by the institution	4.40	1st
Training and retraining of teaching staff members	4.32	2nd
Developing indigenous soft wares that are cheap and affordable	4.29	3rd
Provision of infrastructure for adequate ICT learning	4.21	4th
Creating awareness on the importance of software training students	4.15	5th
Provision of constant power supply	4.09	6th
Provision of adequate and durable ICT materials to institutions	4.03	7th
Call for a review of tertiary institution curriculum to provide adequate ICT Training	3.92	8th

4. CONCLUSION

With reference to the objectives of the study earlier structured in the introduction, the aim of the study is to address the challenges of using soft wares in training quantity surveying students. The results of the study identified Qcloud, WinQS, DimensionX, WinEst, ConEst and Masterbill as the major Soft wares used in Training Quantity Surveying students. Meanwhile, Inadequate funding of ICT by institution financial

constraint, inadequacy in polytechnic syllabus on ICT development and inadequate knowledge of software usage by quantity surveying lecturers are the major challenges confronting the use of quantity surveying softwares in training quantity surveying students. The study identified Inability to secure good jobs in the Nigerian construction industry, Inability to compete with other quantity surveying graduates and lack of self-confidence as the major impact of the challenges in the use of softwares in training quantity surveying students on quantity surveying graduate. However, the study identified Adequate budget for software application by the institution Training and retraining of teaching staff members Developing indigenous soft wares that are cheap and affordable with Provision of infrastructure for adequate ICT learning as the major Strategies for Mitigating the Challenges Facing Quantity Surveying Students in Software Training. Based on the conclusion of the research, the following recommendations were made: The government should provide more ICT facilities to all the basic schools to enable the schools to deploy ICT facilities for teaching and learning in the classroom. The government should subsidies ICT facilities for teachers and students to enable teachers and students to buy their personal systems. The national policy on information and communication technology in education thrust should be well implemented beyond mere policy statement. Capacity development programs should be provided for basic school teachers to enable them to use ICT facilities for teaching in their various schools. The government should ensure that educational institutions in the country are provided with constant power supply and internet services and the government should employ more ICT teachers and deploy them to basic schools where their services are urgently needed.

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6. CONFLICT OF INTEREST

There is no conflict of interest associated with this work.

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