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A Critical Review of Quality Assurance Practices for Land Economics, Construction Management and Quantity Surveying Education at Makerere University in Uganda

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Abstract:

This paper critically reviews Bachelor of Science degree programmes in Land Economics (BScLE), Construction Management (BScCM) and Quantity Surveying (BScQS) offered by the Department of Construction Economics and Management (DCEM) at Makerere University in Uganda and their curriculum quality assurance practices in order to meet industry requirements. Teaching relevant course content, employment of highly qualified and experienced academics, implementation of high quality assessments, evaluation of lecturers and subjects, receiving student feedback, prioritization of research output and publications, creation of strong industry ties, provision of good learning and teaching facilities are main curriculum quality assurance practices implemented by DCEM at Makerere University to graduate high quality professionals. In addition, Makerere University's management gave the DCEM adequate support to implement the good curriculum practices to ensure that high quality property and construction education is delivered to the industry and students in Uganda as well as internationally. Findings of this study and review will support the promotion of good property and construction education quality assurance practices at universities in Uganda and internationally to ensure that well prepared property and construction professionals are continuously produced for the property and construction industry. The work also forms part of the contribution to strengthening tertiary education management.

Keywords: BScLE, BScCM and BScQS education; curriculum quality assurance practices; industry requirements

1. Introduction

This paper describes practices of quality assurance for Bachelor of Science degree programmes in Land Economics (BScLE), Construction Management (BScCM), and Quantity Surveying (BScQS) offered by the Department of Construction Economics and Management (DCEM) at Makerere University (MAK) in Uganda during an external curriculum examination exercise for academic years 2018 to 2020. The purpose of this paper is to highlight the exercise and good curriculum practices undertaken by the DCEM at MAK in order to deliver high quality education which supports the graduation of well prepared and competent property and construction professionals for the industry. In so doing the DCEM aims at continously meeting high quality education standards and requirements for students and industry both locally and internationally. This has been achieved by DCEM through the accommodation of changes in the curricula it offers based on the needs identified during curriculum quality assurance exercises.

The DCEM was started at MAK in 2004 with 67 students and three programmes, namely: BScLE, BScCM and BScQS (Makerere University DCEM Handbook, 2020). The main objective for introducing the department was to produce

competent property and construction professionals with appropriate knowledge of the built environment and management skills; a command of cost planning and management techniques; and thorough understanding of the property market as well as administrative and legal aspects of building projects. The degree programmes take four years for students to complete BScLE and BScQS and three years to complete BScCM. In addition, it is expected that graduates from the department should possess excellent understanding of the principles of management, economics, construction technology and the environment. Furthermore, the graduates are expected to be proficient communicators with well-developed planning and problem-solving skills and be able to work positively in team situations. In 2020, the department had in total of 174 students registered in the three undergraduate degree programmes offered and a total of thirty lecturing and administrative staff members. Of these staff, 20% have doctorate degrees in property, construction management and quantity surveying disciplines. Table 1 and 2 show numbers of students admitted in the DCEM from 2015 to 2020 and the sampled academic staff while Tables 3, 4 and 5 show course contents of the three degree programmes offered by the DCEM at MAK, namely: BScLE, BScCM and BScQS.

Table 1: Students registered in the DCEM at Makerere University in Uganda

Year	BSQS	BSCM	BSLE	Total
2015/16	67	37	41	145
2016/17	49	33	62	144
2017/18	50	38	49	137
2018/19	41	55	38	134
2019/20	61	53	60	174

Source: Department of Construction Economics and Management, Makerere University (2020)

2. Literature Review

Quality is described by Armitage (1994) as the subjective and objective attributes of a product or service which satisfy customer's expectations and perceptions at the time of purchase and during the usable life of the product or service. Callanan & McCarthy (2003) and Chikafalimani (2018) emphasise that within any university, quality can be gauged by both the standards of the students and willingness of the industry to employ graduates from that institution.

MAK incorporated in its vision a commitment to provide high quality education for all educational programmes it offers, including property and construction education within the available resources (CEDAT, 2020). Its commitment to maintain high quality standards of learning was recently recognized by the Times Higher Education World University Rankings (2020) who ranked MAK as the fifth best university on the African continent. One of the mechanisms that MAK introduced in order to achieve high quality education standards for the curricula it offers, is to conduct external examination exercises for the programmes. External examination of the curricula at MAK and specifically for the DCEM involves the vetting and appointment of an independent highly qualified external examiner with both vast experience in property and construction education and industry practice to assess the programmes and determine if good curriculum practices are being implemented. The exercise is done in order for the curricula to continue meeting acceptable local and international higher education standards. This was in line with both local and international university teaching standards, which have emphasized the need for educators to involve experienced academics and industry practitioners in the assessment of the curricula (Worzala, 2003, Chikafalimani & Cloete, 2006). Curriculum comments and input given by the industry support the university to accommodate suggested changes and improve the curricula in the future. External examination exercises also give assurance to both students and industry that the education the university is offering is of high quality.

External actors also ensure and facilitate high quality curriculum for DCEM. The National Council for Higher Education (NCHE), whose vision is to ensure provision of relevant and sustainable quality education for development and transformation of the society in Uganda also facilitates high quality curriculum for DCEM. NCHE was established to implement the University and Other Tertiary Act of Parliament (2001) as the regulator of higher education in Uganda. The law requires that before programmes are taught in higher education institutions, NCHE must accredit them and all DCEM degree programmes are accredited. In addition, the Institute of Surveyors of Uganda (ISU), which is a professional body responsible for regulation, and registration of property, construction and quantity surveying professionals to practice in Uganda, also assists in the monitoring of quality of the curricula offered at the universities (ISU, 2020). This is done to comply with the Ugandan laws in order to protect the public from fly by night service providers as well as to meet industry and legal practice requirements for the surveying profession. One main piece of legislation ISU relies on heavily to monitor and implement their regulatory practice task of professional registration is

the Surveyors Registration Act 275. Therefore, based on their experiences in the delivery of their duties, professional bodies and councils have from time to time offered valuable comments that can assist universities too in quality assurance for the curricula they offer. Other African states, for instance South Africa also have quality assurance bodies, like the Council for Higher Education.

3. Research Method

This research paper relied on a mixed methods research approach (Creswell, 2014) where six main research approaches were used in order to review and collect data on quality assurance and good curriculum practices during the external examination exercise conducted for academic years 2018 to 2020 for the DCEM at MAK for BScLE, BScCM and BScQS education it offers. According to McMillan & Shumacher (2006), mixed research methods involves a combination of multiple data gathering techniques including document and report analysis, observations and conversations. In line with this research approach, firstly, the Head of DCEM was approached to supply study guides and other relevant documents in files, which provided evidence of quality assurance and good curriculum practices undertaken by the department for the curricula they offered. Secondly, a meeting with 10 academic staff in the DCEM was convened to determine quality assurance and other good curriculum practices the department implemented in order to deliver high quality education to the students registered in the department. Thirdly, a meeting was held with students registered in the department to obtain feedback on the quality of education, teaching and learning support they received in the department. Fourthly, a meeting was also arranged with MAK management to be briefed on institutional support given to the department. Fifthly, an inspection of classrooms, lecturers' offices, laboratories, library resources and other infrastructure was also conducted to assess the condition of the learning and teaching facilities for the students and staff. Finally, wherever necessary the internet was used to obtain relevant data for MAK and the DCEM related to the study. Table 2 contains descriptive statistics of the survey respondents who are academics in the DCEM at MAK. By qualification 80% of the respondents / staff possessed a Master's degree and 20% of the respondents held Doctorate degree in property, construction management and quantity surveying disciplines. In terms of years of work experience, all of them had three or more years of experience. As a result, the curriculum quality assurance comments received from the respondents were based on several years of work experience, of which all the 10 staff members in the DCEM had 3 years or more. Therefore, the curriculum quality assurance comments given by the respondents would be very supportive to new staff in the department and other universities offering similar programmes on curriculum practices to be followed in order to deliver high quality education.

Table 2: Academic staff profile 2020

Description	**Number of Staff (Out of 10)**	**Percentage (%)**
Qualification:		
Master's degree	8	80
Doctorate degree	2	20
Total	10	100
Years of Experience:		
Three years and above	10	

Source: Department of Construction Economics and Management, Makerere University (2020)

Table 3: Contents of BSc Degree in Land Economics offered by DCEM at MAK

Year 1: Core Courses	**CU**		**CU**
Computer Literacy	4	Law of Contract for Surveyors	3
Engineering Mathematics	4	Macroeconomics for Surveyors	3
Land Plan Drawing	3	Land Economics I	4
Basic Law and Governance Structures	3	Construction Technology I	4
Microeconomics for Surveyors	3	Construction Drawing	3
Communication Skills	4	Measured Drawing	2
		Real Estate Valuation I	4
Year 2: Core Courses			
Construction Materials	4	Commercial Law for Construction	3
Construction Technology II	4	Land Economics II	4
Law of Torts for Construction	3	Principles of Accounting	3
Real Estate Valuation II	4	Building Services	3

Sociology for Technology	3	Land Registration	3
Building Finishes and Fixtures	3	Land Measurement Sciences	3
		Industrial Training	2
Year 3: Core Courses			
Administrative and Local Government Law	4	Real Property Law II	4
Real Property Law I	3	Entrepreneurship	4
Maintenance Management	3	Property Economics	4
Investment Appraisal I	3	Investment Appraisal II	4
Real Estate Development	3	Real Estate Finance and Taxation	3
Real Estate Valuation III	3	Research Methods and Statistics	3
		Industrial Training	2
Year 4: Core Courses			
Real Estate Valuation IV	3	Final Year Project I and II	5
Professional Practice, Procedures and Ethics	4	Facilities Management	3
Property Management	3	Urban and Regional Planning	3
Building Surveying	3	Geographical Information Systems	4
Land Policy Studies	3	Property Investment Analysis	3
		Property Marketing	3
Key: CU = Credit Units			

Source: Department of Construction Economics and Management Study Guide, MAK (2020)

Table 4: Course contents of BSc Degree in Construction Management offered by DCEM at MAK

Year 1: Core Courses	**CU**		**CU**
Computer Literacy	4	Financial Accounting	4
Engineering Mathematics	4	Construction Technology I	4
Building Science I	4	Business Law for Construction	3
Geophysical Environment	3	Construction Management I	4
Elements of Geotechnical Engineering	3	Construction Drawing	3
Communication Skills	3	Workshop Practice	2
		Elements of Structural Analysis	3
Year 2: Core Courses			
Construction Materials	4	Cost Engineering	3
Labour Law for Construction	3	Measurement and Design Appraisal I	4
Construction Technology II	4	Building Services	3
Construction Management II	4	Research Methods and Statistics	3
Sociology for Technology	3	Land Surveying for Construction	3
Strength of Materials	3	Industrial Training	2
		Commercial Law for Construction	3
Year 3: Core Courses			
Construction Technology III	4	Final Year Project I and II	5
Construction Costing	3	Entrepreneurship	4
Measurement and Design Appraisal II	3	Professional Practice, Procedure and Ethics	3
Professional Communication	3	Construction Contract Law	3
Maintenance Management	3	Construction Marketing	3
Elements of Highway Engineering	3		
Key: CU = Credit Units			

Source: Department of Construction Economics and Management Study Guide, MAK (2020)

Table 5: Course contents of BSc Degree in Quantity Surveying offered by DCEM at MAK

Year 1: Core Courses	**CU**		**CU**
Computer Literacy	4	Law of Contract for Surveyors	3
Engineering Mathematics	4	Elements of Architectural Design Fundamentals	3
Geophysical Environment	3	Quantity Surveying I	4

Basic Law and Governance Structures	3	Construction Technology I	4
Introduction to Quantity Surveying	3	Construction Drawing	3
Communication Skills	4	Measured Drawing	2
		Elements of Structural Analysis	4
Year 2: Core Courses			
Construction Materials	4	Commercial Law for Construction	3
Construction Technology II	4	Cost and Value Engineering	3
Law of Torts for Construction	3	Quantity Surveying II	4
Principles of Management	3	Building Services	3
Sociology for Technology	3	Land Surveying for Construction	3
Building Finishes and Fixtures	3	Economics of Property and Construction	3
		Industrial Training	2
Year 3: Core Courses			
Construction Technology III	4	Entrepreneurship	4
Real Property Law	3	Operations Research Techniques	3
Housing Development and Management	3	Construction Production Management	3
Maintenance Management	3	Construction Contract Management	4
Principles of Accounting for Surveyors	3	Research Methods and Statistics	4
Administrative and Local Government Law	3	Industrial Training	2
		Urban and Regional Planning	3
Year 4: Core Courses			
Construction Technology IV	4	Final Year Project I and II	6
Operations Research Techniques	4	Quantity Surveying IV	3
Building Surveying	5	Facilities Management	3
Professional Practice, Ethics and Procedures	4	Analysis of Prices and Estimating	3
Construction Project Management	4	Arbitration and Dispute Resolution in Construction	3
Quantity Surveying III	4	Construction Marketing	3
Key: CU = Credit Units			

Source: Department of Construction Economics and Management Study Guide, MAK (2020)

4. Findings, Analysis and Discussion

Table 6 below contains a summary of education and curriculum quality assurance practices and procedures identified in the study that are implemented by the DCEM at MAK in the delivery of the three undergraduate curricula. As noted, several good curriculum quality assurance practices and procedures are implemented or accessed by the department. These include: offering relevant course content, employing highly qualified and experienced academics, implementing high quality assessments, evaluation of lecturers and subjects, receiving student feedback, prioritization of research publications and output, creation of strong industry ties, provision of good learning and teaching facilities, and availability of institutional and management support. Some of the key curriculum quality assurance practices and procedures are elaborated below in detail.

Further in-depth analysis, wherever necessary, was undertaken to scrutinise and examine the curriculum quality assurance practices and procedures to confirm if they were at the same level with other recognised academic programmes or in line with comparable industry guidelines locally and internationally. For example, course contents for BScLE, BScCM and BScQS curricula offered by DCEM at MAK that are given in Tables 3, 4 and 5 were compared with expected course contents for recognised Bachelors' degrees in property, construction management and quantity surveying internationally. After comparison the curricula proved to possess the expected course contents as guided by professional bodies, other industry stakeholders and distinguished academics in property and construction education. Chikafalimani (2013), Carn & Rabianski (1986), Epley (1996), Black et al. (1996), Roulac (2002), Weeks & Finch (2003) and Schulte (2003) are distinguished academics in real estate education. They indicated that any well-rounded comprehensive real estate curriculum should at least contain the following important course subjects: Real estate valuation, Real estate management, Real estate development, Real estate finance and Real property law. BScLE curriculum offered by DCEM at MAK complies with this requirement by containing these important course subjects expected in a real estate curriculum. With regard to international comparability, guidelines by the South African

Council for the Quantity Surveying Profession (SACQSP) and South African Council for the Project and Construction Management Professions in South Africa were used as a benchmark in this study. These respected regulatory professional bodies identified: Quantity Surveying, Construction Technology, Building Science, Site Surveying, Construction Contract Law and Procedures, Constructions Economics; and Elements of Quantity Surveying, Construction Technology, Building science, Site Surveying, Construction Contract Law and Procedures, Constructions Economics and Maintenance Management as expected course subjects in comprehensive curricula for quantity surveying and construction management professions, respectively. These course subjects too are included in BScQS and BScCM curricula offered by the DCEM at MAK. In addition, during Industrial Training modules, students are attached to firms for a minimum period of 10 weeks where they practically learn to augment their theoretical knowledge gained from the classroom. These comparisons provide strong evidence that the three undergraduate curricula offered by the DCEM at MAK are comparable internationally and possess high quality attributes. Importantly, lecturing staff members in the department indicated that the aspect of curriculum quality assurance by teaching relevant course content was one of their priorities in the department. They emphasised that this was achieved by the department through its interest in continuous research on property and construction education offered locally and internationally as well as by involving industry practitioners in the improvement and delivery of the curricula. Another important element of curriculum quality assurance in the DCEM at MAK given in Table 6 is the conducting of high quality assessments for students. To achieve this, they mentioned that the department had set high standards for its examinations. This was done by making sure that the quality of examination questions and other assessments was high and reflected on the level of study. 'Critical thinking' type of questions were preferred since they prepared students well for the industry. The staff also mentioned that to maintain high quality of assessments, examination questions were not repeated frequently.

Table 6: Curriculum Quality Assurance Practices and Procedures by DCEM at MAK

	Curriculum Quality Assurance Practices and Procedures		
1	Offering relevant course content	11	Developing students at risk intervention plan
2	Updating teaching materials	12	Prioritization of research publications and output
3	Supplying study guides	13	Implementation of research and teaching exchange programmes
4	Employing highly qualified and experienced academics	14	Implementation of industrial training
5	Developing a staff development plan	15	Development of quality improvement and strategic plan
6	Conducting high quality assessments	16	Engaging the community engagement
7	Moderation of assessments	17	Creation of strong ties with industry and professional bodies
8	Conducting external examination	18	Provision of good learning and teaching facilities
9	Evaluation of lecturers and subjects	19	Availability of institutional and management support
10	Receiving student feedback		

Source: Department of Construction Economics and Management, Makerere University (2020)

Finally, through the study it was noted that the DCEM at MAK emphasises on: receiving comments from students through student feedback exercises, subject and lecturer evaluations; employing highly qualified and experienced academics; and creation of strong ties with the industry and professional bodies in the curriculum. Lecturing staff in the department indicated in a meeting, which was organised to discuss curriculum quality assurance practices during the external examination exercise, that comments obtained from students in the department were taken seriously and considered in the improvement processes of the quality of education they received the university. This was in line with the recommendations and high standards of international learning and teaching outlined by Manning (2002). He argued that students had a very significant role to play in the improvement of the quality of their own education because they investigate too knowledge and skills they will require at the workplace despite being considered as having limited knowledge in improving the topics included in the curricula by the educators. Hardin III (2002) assessed the impact of hiring and employing highly qualified and experienced academics in a university department and he noted that they added enormous value to the students and the university due to their admirable traits in the academic space. Importantly, Chambers, Holms & Worzala (2009), and Schulte & Schulte-Daxboek (2003) also emphasized benefits of having strong ties with the industry and professional bodies in the curriculum. They reported that employers and industry practitioners have the ability to direct universities on which areas of the curriculum requires change or addition to improve the quality of graduates and the curriculum. At the same time, professional bodies are also interested in making sure that curriculum quality assurance is adhered to by the universities offering the programmes in higher

education for property and construction professions. To sum up, Worzala (2003) and Chambers, Holms & Worzala (2009) commented that property and construction programmes offered by universities can only be validated and legitimised when employers recruit their graduates and professional bodies recognise the high quality of the curricula being offered. Locally all the three undergraduate property and construction curricula offered by the DCEM at MAK are also highly recognised by ISU and accept graduates from the department for professional registration as property, construction and quantity surveying professionals (ISU, 2020). These further echoes the sentiments raised that the DCEM at MAK is always conscious that quality assurance mechanisms in the curricula it offers are always implemented in order to produce high quality graduates for the industry. It also would support the argument for setting up an advisory board for the DCEM that would constitute of experts from industry at national and international level as well as departmental representatives to help continuously innovate and improve the curricula and strengthen the quality assurance aspects of the programme.

6. Conclusion

This research paper critically reviews and describes curriculum quality assurance practices implemented by the DCEM at MAK for BScLE, BScCM and BScQS education it offers in Uganda, Africa. The aim was to publish and promote good curriculum practices which the department follows for purposes of giving quality assurance to the three undergraduate curricula it offers to students, industry and of course to the public in general. The curriculum quality assurance practices were determined during an external examination exercise for the DCEM at MAK for the academic years 2018 to 2020 documents analysis, inspection of facilities and other relevant methods. Based on the evidence scrutinised and examined in the department some of the key practices of curriculum assurance which the department is implementing include: teaching relevant course content, employing highly qualified and experienced academics, implementing high quality assessments, evaluation of lecturers and subjects, receiving student feedback, prioritization of research publications and output and creation of strong industry ties. In addition, MAK management supported the department by providing good learning and teaching facilities. The adoption of these practices in its curricula ensures that the department always offered high quality higher education in property and construction education to students and industry both locally and internationally. Noteworthy is also the important fact that the findings have confirmed the recognition of DCEM as one of the best university departments in Africa offering property and construction programmes because the department is implementing good curriculum practices approved by local and international professional bodies, distinguished academics in property and construction and World University ranking partners. Findings of this review and study will support new and other universities offering similar curricula both locally, in Africa and internationally to improve and adopt curriculum quality assurance practices in order to maintain high quality standards of property and construction education as well as to meet students and industry requirements. To conclude, this review recommends more research in this significant area of good property and construction curriculum practices to ensure that high quality education continues to be delivered to students and the industry in the future to support socio-economic development agendas internationally. This review also recommends the setting up of advisory boards at departmental level at universities that would have experts from industry both at national and international level that could help with reviews and continuously provide feedback into the programmes.

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