IMPACT OF PROFICIENCY IN INFORMATION COMMUNICATION TECHNOLOGY SKILLS ON JOB PERFORMANCE: A CASE OF UNIVERSITY QUALITY ASSURANCE OFFICERS IN KENYA

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Abstract

In Kenya, the Commission for University Education and the Universities Act, Cap 210(B) places a lot of emphasis on structured, pre-determined standards and processes vested in the office of quality assurance. Arguably this is a good move towards quality education but existent, is a worrying scenario of deployment of quality assurance coordinators who have no prerequisite ICT skills for Quality management. Thus the purpose of this study was to establish the impact of level of quality management ICT skills on job performance among university Quality Assurance Officers in Kenya. A descriptive design study, using a sample of 132 Quality Assurance Officers and university managers was done. A questionnaire was used to collect information. The study tools were acceptable at a reliability coefficient of 0.07, while the margin of error in calculations was acceptable at alpha=0.05.The findings showed that there is a significant effect of level of ICT skills for quality management on job performance. It is hoped that training institutions and university managers will take appropriate measures to develop staff in this field so as to enhance their productivity and in the long run provide quality higher education.

Keywords: Quality, Quality Assurance, ICT, Quality management, Job performance

INTRODUCTION

The account of Quality Assurance (QA) sometimes referred to as Independent Verification and Validation can be traced back to the Atlas Missile Program in the late 1950s. The program launched the U.S. Space program and consisted of several large software development vendors, who bent towards giving overly optimistic estimates of the software's development status. The implication was that the development contractors were not objective when measuring the true health of the project. This prompted the Program Manager to hire an independent software tester in hopes of getting a more accurate assessment (Nelson, 1979). Since then many studies have been done to support the assertion that projects with Quality Assurance perform much better than projects without (Arthur and Nance, 2000; Wallace and Fuji, 1989; Hitt and Brynjolfsson, 1996; Prasad and Harker, 1997).

In Higher Education sector, quality assurance has been embraced as a means of ensuring universities meet the standards of stakeholders and that the products are fit for market. This is seen through global and national endeavors to formulate policies on ICT integration in public and private sectors. With the advent of ICT, businesses that leverage on its benefits edge towards competitive advantage. Thus universities are using ICT to improve on efficiency in both functional and operational areas. In order to monitor adherence to set standards, it becomes imperative that the Quality assurance officers are endowed with ICT skills.

In Kenya, the Commission for University Education (CUE) has recognized the need for ICT in its activities through its policies and strategic plan. Additionally, the commission has fostered training of QAOs in collaboration with DAAD. Through these trainings, various areas of Job competence and professional growth are addressed. However, despite the use of ICT in these processes, there is assumption that QAOs are competent enough in ICT to carry out their mandates. This study tries to un-package this assumption and measures the level of ICT for quality management amongst QAOs from Kenyan Universities. More so, an assessment of how these levels in ICT training affect their performance becomes a matter of focus.

Statement of the Problem

Organizations that engage quality assurance personnel and leverage advantages of ICT skills application normally create a competitive edge. University education sector in Kenya has embraced this practice as a response to the University Education ACT 2012, and as adoption of best practice in business management. However, an emergent gap in the area of ICT proficiency is clear amongst the Quality Assurance Officers. This shortcoming affects their performance based on the expected deliverables. Studies have showed support to the assertion that projects with QA perform much better than projects without (Arthur & Nance, 2000; Wallace

& Fuji, 1989). Additionally there is empirical evidence of the value of ICT in enhancement of quality management activities. However, there is a gap in the level of ICT skill endowment for QAO in university sector in Kenya. Clear establishment of the ICT skill's gap would enable parties interested in quality of university education in Kenya to plan for training, scholarship and professional development of these key officers in the universities.

Purpose of the Study

Purpose of this study was to establish the impact of ICT skills for quality management level on job performance among university Quality Assurance Officers in Kenya. Specific objectives of this study included:

1. To find the level certification in IT skills in Quality management among QAOs in Kenya.
2. To find out the effect of QAOs proficiency in use of basic computer skills on job performance.
3. To find out the effect of QAOs proficiency in midlevel computer skills on job performance.
4. To find out the effect of QAOs proficiency in use of advanced computer skills on job performance.
5. To examine the coping mechanisms used when IT related incompetence is faced.

LITERATURE REVIEW

Theoretical review

This study was informed by , self-efficacy theory, Wormell model, Technology Acceptance Model (TAM) and Theory of Reasoned Action (TRA).Self-efficacy theory by Albert Bandura in 1977, explains a person's self confidence in his or her ability to perform a particular task. It is positively related to performance as a person of high self-efficacy is likely to perform jobs assigned to him better than a person of weak self-efficacy. It is imperative that, staff training in ICTs and emerging technologies be made a priority in academic institutions, in the state and elsewhere. This idea is likely to increase QAOs' self-efficacy in handling assignments in the emerging digital and electronic learning environment.

Wormell model explains the level of collaboration that should exist between the different players in learning organizations (Wornell, 1998). It is therefore crucial that, all the key players in an institution i.e. staff (user), management (sponsor of training programmes), programme designers (architect) and the trainers come together to develop programmes that will improve skills and proficiency in the use of electronic resources. Such collaboration will

ensure proper needs assessment is done among QAOs to ascertain the level of skills desired to improve their performance.

Technology Acceptance Model by Davis (1989) points that people are likely to accept easily, such technologies that easily enhance job performance and free them from much effort . QAOs should be educated on potentials of new technologies to improve job performance before introducing them. Training modules should be highly simplified and practical training emphasized above theory so that the staff will get used to doing it with less efforts.

Theory of Reasoned Action developed by Icek Ajzen and Martin Fishbein in 1975 postulates that an individual's action is dependent on the perceived outcome of the action, it is important that, a form of reinforcement be attached to the acquisition of and practical display of information technology skills. Such reinforcement may encompass promotional rewards, or Job enrichment so as to encourage QAOs to easily engage in ICT training for quality management.

Empirical Review and Hypothesis Development

Information and communication technology (ICT) systems are widely used in organizations. Their use has many favorable consequences, because they support interaction and collaboration, workplace learning (Andriessen, 2003), and work performance (Ciborra and Patriotta, 1996; Jones and Kochtanek, 2004; Nunamaker, 1997; Orlikowski, 1996). Several studies demonstrate that ICT investments are beneficial for performance and productivity (Bharadwaj, A., Bharadwaj, S., and Konsynski, 1999; Hitt and Brynjolfsson, 1996).

Empirical studies in the corporate sector show variation in results regarding performance and ICT payoffs (Koellinger, 2006).In one study, positive impact of ICT investment on productivity has been reported (Brynjolfssson and Hiit, 1996). In another study, effect of ICT capital on productivity showed negative effects. Nevertheless, ICT labor positively contributes to output and profitability (Prasad and Harker, 1997).Additionally, some authors have argued that ICT investment must be combined with complementary investment in work practices, human capital and firm restructuring in order to have impact on performance (Brynjolfsson and Hitt, 2000; David 1990, Greenwood and Javanonc 1998, Malone and Rockert 1991).

In another view, Bertschek and Kaiserin 2004 show that ICT has indirect effects on productivity by enabling workplace reorganization and organizational change. It is evident that there are differences in technological opportunities across sectors, either due to earlier investments and time gaps between investment and productivity gains. Rather, it is logical to expect higher ICT related productivity gains among advanced users of ICT. Based on previous

research results; it is plausible to anticipate that endowment of QAO with ICT skills is likely to lead to better productivity and hence better performance.

In higher education management, research has revealed that integration of ICT helps to reduce the complexity in administration. For instance, Ashish Kumar and Arun Kumar in 2005, showed the importance of IT as a modern day techno-management tool that should benefit institutions of higher education in India. Enhancing the usage of ICT on functional areas of administration will enable higher education to improve on quality in the realm of global competitive environment. Rajeev Singh(2008) has specified that ICT has played a major role in reducing operational inefficiency and improving decision making in many areas of governance; an aspect that propels quality assurance agenda. Since application of ICT includes personnel administration, student administration, resource administration, financial administration and general administration, (Christiana, 2008), it can be deduced that QAO need to be above the game in ICT skills. This will enable them to interrogate systems and sections for compliance to standards and also quality control.

In a study carried out by Matovu (2009) at Makerere University on availability, accessibility and use of ICT in management of students' academic affairs, it was recommended that university authorities should adequately train and acquaint users with ICT skills such as database management, skills in information systems and internet. Lecturers should be facilitated with ICT and policy created to enforce use. As such, University authorities should train administrators and provide them with the required computer facilities. This assertion denotes that QAOs must have excellent skills in ICT in order to assess various processes in the universities.

This review leads to formulation of a null Hypothesis that '*Proficiency in ICT Skills for Quality Management has no significant effect on Job Performance of Quality Assurance Officers in Kenyan universities.*

Specific Hypothesis developed to test this assertion included:

HO_{1a}: *There is no statistically significant effect of QAOs proficiency in use of basic computer skills on job performance.*

HO_{1b}: *There is no statistically significant effect of QAOs proficiency in midlevel computer skills on job performance.*

HO_{1c}: *There is no statistically significant effect of QAOs proficiency in use of advanced computer skills on job performance.*

Conceptual Framework

Based on theoretical and empirical review, the relationship between the study variables was conceptualized as illustrated in Figure 1.

Figure 1: Proposed effect of QAOs level of computer proficiency on Job performance
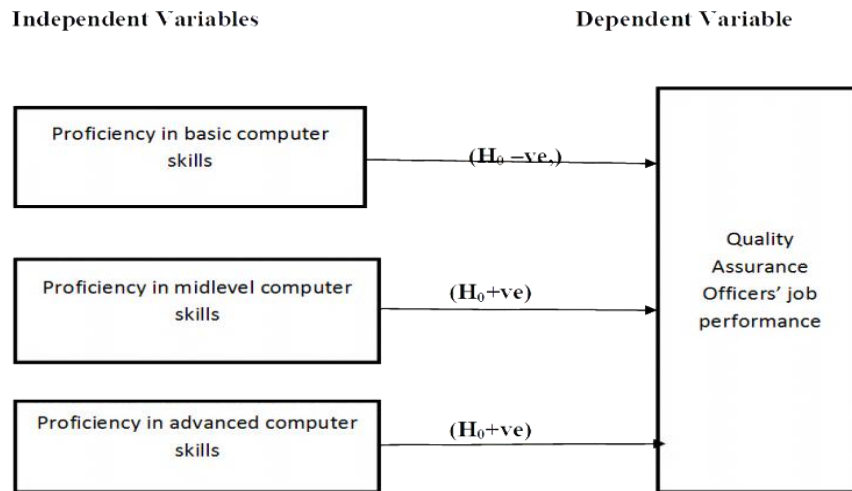
METHODS

The study adopted a descriptive survey research design since it sought for opinions and ideas. Kothari, (2008) states that the descriptive studies may include present facts, existing conditions concerning the nature of persons, a number of class of events and may entail procedures of enumeration, induction analysis, classification, details and measurement. This study sought opinions on prevailing conditions and experiences of women in leadership. The target population was all quality assurance officers and managers in all universities in Kenya.

Sampling & Data collection tool

The total sample of respondents used in this study was (132) composed of (66) QAOs, and 66 university managers. The sampling technique adopted was random and purposive; purposive, because the study targeted QAOs, and random because the respondents included any university senior manager. The questionnaire was divided into (2) major sections: Section A measured the demographic characteristics of the respondents. Section B measured the existence of study variables. The items' reliability coefficient (Cronbach alpha) was acceptable at 0.70. Expert opinion was sought from scholars in ICT and business management who confirmed the content validity of the measures used, while the pilot study results confirmed their predictive validity.

Data Analysis

Data cleaning was done and analyzed using SPSS software. The first step was to summarize data using frequencies and percentages. Secondly, the hypothesis testing was done using multiple regression analysis where beta coefficients were used to check for effects between dependent and independent variables.

Operationalization of study variables

Bogdan (1988) defined operationalization as the process of strictly defining variables into measurable factors. In this study the variables were operationalized as in Table 1:

Table 1: Variable operationalization

Independent Variables	Indicators/ measures	Instrument
Proficiency in Basic Computer Skills	Word processing Use a spreadsheet Use a database Messaging/ Communications	Five point likert scale
Proficiency in midlevel Computer skills	Networking Use of statistical analysis software Data mining	Five point likert scale
Proficiency in advanced Computer skills	Business Process Modeling/ Intelligence/ Analytics IT security Project management software Web development Programming and Application Development	Five point likert scale
Dependent Variable Level of QAO Job performance	Excellent Good Neutral Satisfactory Poor	Five point likert scale

EMPIRICAL RESULTS & DISCUSSION

Study results (see Appendix 1) show the background statistics of the 66 quality assurance officers. The level of education shows that 5 % hold a Bachelor's degree, 60 % a Master's degree and 36 % were holders of Doctorate degrees. Therefore, most of the Officers are holders of Master's degree. However these degrees are not specifically in quality management. As regards ICT qualification in general, 67 officers hold a certificate or diploma in ICT, 14 %

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have a degree in ICT while less than 1 % have a PhD in ICT. This is an indication that most of the officers have only basic general ICT skills.

Analyses of proficiency in ICT skills for quality management indicate that 46 % of the QAOs have basic skills, while 51 % have midlevel skills. A meager 4 % have advanced level skills for quality management.

Evaluation of QAOs by selected senior managers was done and results showed that 10 % are rated as excellent in performance, 23 % as good, while 27 % were neutral. Most (37 %) of the Officers were reported as satisfactory while afew (5 %) were rated as poor in performance. In deed this is a clear indication that most of the officers' performance is not good or excellent.

Further, the QAOs were asked how they cope with work in case of inadequate skills. Results show that most (35 %) officers pay IT consultants, 28 % consult friends, 26 % ignore the work while 11 % stop the task. This scenario may affect the work output and in long run institutional returns on investment.

Hypothesis testing

In order to test the implication of these statistics, four hypotheses were tested: Multiple regression analysis shows that the independent variables(proficiency in IT skill for quality management) were quite significant predictors of the dependent variable (Job performance).The R square adjusted was 76 %. Based on ANOVA reading, the model was significant at 0.05 at three degrees of freedom [Appendix 1]. This also implies that there may be other factors that explain the remaining 24 % of the Model.

In order to test for effect of each independent variable on the dependent variable, a stepwise regression analysis was run. Results indicate that the strongest predictor of job performance was proficiency in advanced level skills (R^2 = 0.309, followed by midlevel skills (R^2 = 0.622) and finally the basic skills (R^2 = 0.755), [Appendix1].In the stepwise regression analysis, the beta coefficients for the predicted model shows that proficiency in advanced level skills has highest impact (*b*=0.595) at 0.05 precision level. The next was proficiency in midlevel skills (*b* = 0.559) at 0.05 precision level. Proficiency in basic level skills had least (*b* = 0.364) effect on Job performance at 0.05 precision level.

These study results show that the three null hypotheses that there is no significant effect of proficiency in ICT skills for quality management at different levels are rejected. Thus each of the study hypotheses indicates that there is a significant effect of proficiency in ICT skills for Quality management on performance of QAOs in Kenya.

These findings concur with previous empirical studies (Hitt and Brynjolfsson, 1996 ; David 1990, Greenwood and Javanonc 1998, Malone and Rockert 1991; Matovu,2009) affirming that ICT skills when properly embedded and used in correct organizational climate, leads to improved productivity of personnel and the returns on investment in the long run. The viewpoints of self-efficacy theory, Wormell model, Technology Acceptance Model (TAM) and Theory of Reasoned Action (TRA) as discussed earlier, are also affirmed by these findings, and in fact justify the need for ICT training among QAOs. As observed, the pursuit of advanced skills and midlevel skills in ICT for quality management would edge towards good and excellent performance amongst QAOs in Kenya.

CONCLUSION AND RECOMMENDATIONS

The study tested three hypothesis and five objectives. The study outcome is that the Advanced level skills had the highest impact on Job performance, followed by Midlevel skills and finally basic skills. The irony was that based on background characteristics, most of QAOs had basic and midlevel skills. This is consistently observed in the Job performance rating that indicated that most of QAOs were rated as simply satisfactory. Logically it follows that because of the low basic skills in ICT for Quality management, the QAOs are challenged in their work and therefore many are not rated as good or excellent in performance.

Analysis of coping mechanisms when QAOs are faced with IT skills challenge showed that the larger proportion opt to consult experts or colleagues. This translates into more expenditure on institutions or more time wasted as other colleagues' attention is diverted to this work.

Further research should try to establish other factors that may influence Job performance of QAOs in Kenya. The study methods used perceptual judgment and solicited opinion which could be influenced by other factors. Future research should explore actual scientific cause and effect assessment of Job performance and ICT skills.

Recommendation for policy and practice edges on emphasis for training in ICT for quality management geared towards midlevel and advanced levels. This informs the universities in Kenya to incorporate this aspect in their staff development agenda. It also informs the Ministry of Education, Commission for University Education and Non- governmental groups to prioritize training of QAOs in ICT skills for quality management.

Limitations of the study

This study brings forth important findings that may improve QAOs' practice; however, it had assumptions that relied on social truth construction which could be biased. Additionally, there

was no scientific control over all other variables that may influence the relationship between the independent variable and dependent variables. Further research may consider structural equation modelling to test for causal effect relationships between variables.

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APPENDICES

Appendix 0. Operational Definition of Terms Used

Quality is achieving our goals and aims in an efficient and effective way, assuming that the goals and aims reflect the requirements of all our stakeholders in an adequate way.

Quality Assurance is assessment of different functions against set standards aimed at the meeting the requirements of stakeholders.

Quality Management-The act of overseeing all activities and tasks needed to maintain a desired level of excellence. This includes creating and implementing quality planning and assurance, as well as quality control and quality improvement.

Job performance-Job performance is an individual output in terms of quality and quantity expected from every employee in a particular job.

Appendix 1. Stepwise regression Outputs

Model Summary

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate
	1	.556[a]	.309	.304	1.81338
dimension0	2	.792[b]	.628	.622	1.33585
	3	.872[c]	.760	.755	1.07662

a. Predictors: (Constant), Advanced level skills

b. Predictors: (Constant), Advanced level skills, Midlevel skills

c. Predictors: (Constant), Advanced level skills, Midlevel skills, Basic level skills

d. Dependent Variable: Job perform total

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	7.101	.442		16.068	.000
	Advanced level skills	.987	.129	.556	7.627	.000
2	(Constant)	4.300	.421		10.223	.000
	Advanced level skills	1.060	.096	.597	11.083	.000
	Midlevel skills	1.112	.106	.566	10.514	.000
3	(Constant)	2.744	.386		7.103	.000
	Advanced level skills	1.056	.077	.595	13.703	.000
	Midlevel skills	1.098	.085	.559	12.873	.000
	Basic level skills	.944	.112	.364	8.403	.000

a. Dependent Variable: Job perform total