THE ROLE OF DIGITAL LITERACY IN CONTINUOUS BASED ASSESSMENT IN TECHNICAL INSTITUTIONS IN UGANDA

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Abstract:

The need for Technical and Vocational Education training for mult-skilled and creative labor force is a key ingredient in the science and technology led growth in Uganda's economy. Performance of students in Technical Institutions has been poor. Results released in 2009 show overall failure rates in community polytechnic colleges as high as 72 percent. In making an effort to improve this trend, the sector ministry put up an independent body, Uganda Business and Technical Examinations Board (UBTEB) to examine technical institutions. As part of the Competence Based Education and Training (CBET), the Board applies Continuous Based Assessment (CBA) mode. This is seen as pivotal in producing skilled labor. Performance by candidates however, continues to show a disappointing picture to-date and sometimes there are common delays in releasing the continuous assessment results causing processing and feedback challenges. This raises more questions than answers that need to be investigated. Could it be that the introduced Continuous Assessment has failed to move with increasing technology? or there are other reasons? This paper makes an attempt to analyze whether digital-based academic strategies bear the potential to produce desired skills in the Continuous Based Assessment mode. A qualitative survey research design was conducted in selected Technical Institutions in Uganda to arrive at the findings.

Key Words: Digital Literacy, Continuous Based Assessment, Technical Institutions

1.0 Introduction and Problem Context

This paper is a result of a preliminary survey in selected Technical Institutions in Uganda. The paper discusses management of expectations associated with Continuous Based Assessment (CBA) amidst Digital Literacy proliferation. The motive of the paper is simultaneously theoretical and pragmatic. Theoretically there is a tendency for Instructors to remain doing things the way they have always done them in the past. Pragmatically, various forms of assessments including CBA have been evolving at the same time with an increase in Digital Literacy that could play an important role in both training and assessment of learners preparing for the job market that is increasingly demanding for better and highly specialized skills. More importantly, concerns have been raised over the various policies and proposals both past and present on whether they are realizing the intended objectives in the technical training sector.

The Business, Technical, Vocational Education and Training (BTVET) Act 2008 and its Strategic Plan of 2010-2020 are one such effort in uplifting technical and vocational education. This Act sits at the crucial crossroads between education and the world of work. It is through this a knowledgeable, socially responsible and sustainable future workforce equipped with the requisite skills for a changing world will be established. The BTVET system is expected to emerge from an educational subsector into a comprehensive system of skills development for employment creation, enhanced productivity and national growth. It needs to be noted that Government of Uganda since 2011 revitalized strongly the issue of addressing youth unemployment through provision of skills.

The greatest challenge however, in meeting the demands of its growing economy is a better skilled and technically qualified workforce as well as providing employable skills to a very large percentage of the youth. This is in line with the need to strengthen quality assurance mechanisms at tertiary level to produce appropriate skilled human resources that match the demands of labor market in the country.

The current status of Technical and Vocational training in Uganda has been influenced by the education policy and legislation enacted in the last five years. The education policy and other relevant laws have, among other things, brought about impressive performance of the education sector as well as the economic sector. Thus the need to acquire technical education has been on the increase especially with the inauguration of both Universal Primary and Secondary Education whose enrolment numbers has increased to over 8 million pupils.

Technical Institutions in Uganda however, are still restricted in both the training and assessment to hard copy materials such as chalkboards, textbooks and paper. The system in general terms of Information and Communication Technology (ICT) is seriously lacking. Nonetheless, with such a rise of ICT some institutions are making attempts to move in that direction thus shifting to the use of Digital Media with its benefits. Digital-based academic strategies bear the potential to produce new skills; and up-to-date educational resources among instructors and learners. As part of ICT, digital devices are recently emerging technologies that need to become integral to the school system (Makewa et al, 2008).

Thus whereas there has been efforts in the search for more computer education and information literacy and general technical competencies, little effort, has been focused on Digital Literacy in

Technical education training and assessment. The Uganda Business and Technical Examinations Board introduced CBA in the training and assessment of students in Technical Institutions but with limited efforts of incorporating digital literacy. This paper through a preliminary survey in selected Technical Institutions in Uganda has the main purpose of finding out whether Digital Literacy can play a key role in CBA in Technical Institutions in Uganda. Specifically, the project intends to:

i. Identify issues emerging in the utilization of digital technology so as to obtain strategies that Examinations Boards can develop to improve assessment.
ii. Assessing practical ways where Technical Institutions can apply digital technology in CBA

2. Conceptual understanding of Digital Literacy

2.1Digital Literacy

Scholars from diverse backgrounds have viewed Digital Literacy from different perspectives. According to Jenkins (2009), Digital Literacy is the ability to effectively and critically navigate, evaluate and create information using a range of digital technologies. In this survey the term Digital Literacy considers the use of all digital devices in the teaching-assessment processes that includes electronic resources created and displayed using computer technology, such as digital audio, digital video and others found online such as internet email messaging. Digital literacy in thus taken to be all embracing including access and knowledge of computer basics, internet and the World Wide Web, computer serenity and privacy, digital lifestyles like use of digital cameras and videos. It thus conceptualized to mean; the ability to use digital technology, communication tools or networks to locate, evaluate, use and create information. Digital Literacy also involves the ability to understand and use information in multiple formats that the computer can deliver. This will help in playing key role for better provision of feedback to the learners and quick processing results of the CBA by the examination boards.

2.2Theoretical Framework: Individual Innovativeness Theory (IIT)

The survey is being based on the Individual Innovativeness Theory (IIT) as advanced by Rogers (1995), which states that individuals who are predisposed to technology will adopt the innovation earlier than those who are less predisposed. In this survey use of Digital technology in Technical Institutions Continuous Assessment can be an innovation in consideration. The IIT theory observes that human activity can be understood better only when the predisposed tendencies of stakeholders of a given technology are taken into consideration. Technology use and level of familiarity are key variables that have particular significance on stakeholders' acceptance of digital media in the education assessment.

The CBA is thus seen as a relatively formal process of recording marks for class work, or some other summative indicator of daily or frequent performance in the classroom. However, sometimes this leaves out the broader meaning of classroom assessment. Digital Literacy has made time and space less complex and in this age of information explosion, human beings have no choice but to explore the information systems to their most advantage. This implies that, the ability for timely acquisition, utilization, communication and retrieval of relevant and accurate information is becoming an important attribute for better teaching-learning process as Adebayo (2008) argues. In a similar way Ronelle Vos (2010) state that ICT is an essential tool in any educational system and can possess the potentials of being used to meet the learning needs of individual students, promote equality of educational opportunities; offer high quality learning

materials, increase self-efficacy and independence of learning among students. It can improve Instructors' professional development, efficiency and the general assessment of learners.
In recognition of the importance of CBA in the teaching-learning process for quality assurance, the Technical Education sector needs to undergo further reforms than is currently pertaining to reap the various good expectations in the use of digital literacy in the training of the highly required skilled personnel. Such assessment using ICT related facilities should no doubt form a unique part of this reform. There is need to evolve new, effective and more practical ways of measuring, evaluating and reporting students' progress towards the various targets and learning goals as has been argued by Nzewi and Ibe, (2009).

3.0 METHODOLOGY

A qualitative survey research design was used in purposively selected Technical Institutions in Uganda with the intention to tap particular views for representation and generalization. This was a preliminary survey meant to assist in developing an action research project in the Technical Institutions. Oral interviews were conducted with personnel involved in the processing of examinations results at UBTEB and Instructors teaching in selected Technical Institutions in Uganda so as to elicit reflective responses from them. This was meant to probe into the strategies for incorporating Digital Literacy in the training and assessment processes. In addition qualitative observations schedules were meant to create direct contact so as to obtain a real picture of the situation. The availability and dependability of digital technology to Technical Institutions was then established by means of observation schedules. It was also meant to establish the degree to which the instructors use the computer as a key tool in Digital Literacy and also express confidence in the use of digital technology.
The research was a preliminary survey and 10 purposively selected Technical Institutes were used selecting 3 Instructors from each of them that totaled to thirty. Ten key informants were also selected from the Technical Institutes. This was meant to obtain adequate data for an action research for future implementation.

Information on Instructor assessment beliefs and practices as well as availability and use of computers as a key tool in the use of digital literacy was obtained through the use of classroom observations, interviews and questionnaires. Key relevant documents from selected Instructors interviewed were also reviewed such as records of assessment, tests and or items developed. The information obtained from the interviews was transcribed and coded, along with the classroom observation data, into a number of categories that reflected Instructor's existing assessment beliefs and practices in the selected institution. Analyses of the data comprised of mainly frequency distributions and employment of a descriptive method to allow easy description on the use of Digital Literacy in CBA by the Instructors in Technical Institutions in Uganda. The aim was to obtain emerging issues on the ground and the practical ways of applying Digital Literacy by Instructors of Technical Institutes and UBTEB as an examination board.

4. RESULTS AND CONCEPTUAL DISCUSSION

4.1 Results from the survey

This section presents survey results on the key objectives of this preliminary survey. This included assessing emerging issues in the utilization of digital technology and identifying some practical ways of applying Digital Literacy in Technical Institutions in Uganda as the proceeding sections indicate.

4.1.1 Emerging issues in the utilization of Digital Technology in Technical Institutions in Uganda

The objective of this survey was meant to identify emerging issues on the ground regarding what is currently pertaining in the area of digital literacy in the Technical Institutions in Uganda. This would help in obtaining strategies that UBTEB as an Examination Board can use to improve the training and assessment of the learners to as to produce the desired graduates. Various issues came out of the survey and are hereby reported.

In Uganda the umbrella body that oversees the overall quality of training and assessment is BTVET. The findings show that there has been several attempts by this sub sector including coming up with the recent Strategic Plan 2011 – 2020. This builds on considerable progress in the reform of the BTVET system achieved during the last decade or so, notably the BTVET Act of 2008 and the establishment of the Uganda Vocational Qualifications Framework (UVQF).

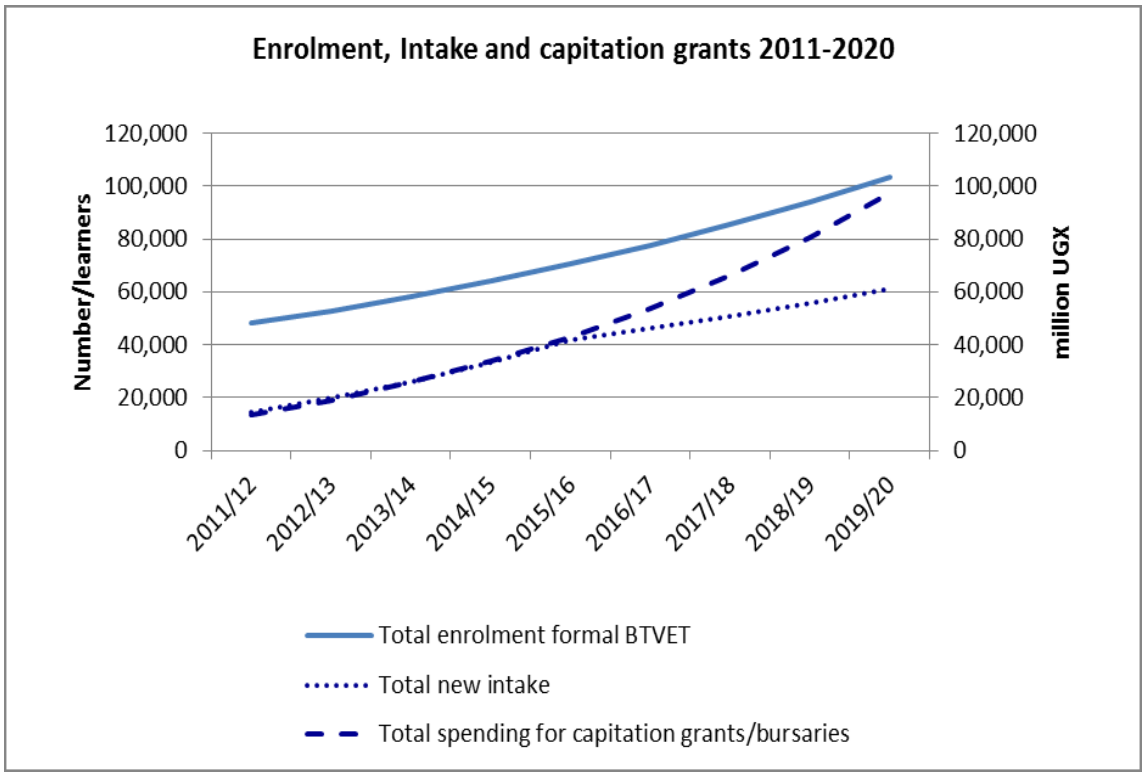
The Government of Uganda, with support from her development partners; the World Bank and Government of Belgium, in 2010 made attempts to improve training in the BTVET Institutions by commissioning a study in this sub-sector that subsequently support the drafting of the Strategic Plan. The analytical and conceptual work included substantial stakeholder consultation and was benchmarked against international experience in the reform of technical and vocational education and training systems. Whereas the Strategic Plan is designed to address the major challenges identified regarding relevance, quality, access and equity, management and financial, the situation on the ground shows a different picture regarding key digital technology.

Preliminary survey shows that until recently, Ugandan employers were by and large passive beneficiaries of the BTVET system. However, private firms show an increasing interest in skills development, and some sectors are planning industry-driven initiatives to skills development. Notable examples include the construction sector and companies in the oil industry. These initiatives seek to support employer-based training initiatives with a favorable regulatory environment, appropriate incentives and specific programs.

In support of the aforementioned argument, the findings show that private training providers, with a strong BTVET segment have more than 1,000 institutions, supported to grow and expand further to foster a market-led expansion of BTVET supply. Nevertheless, an in-depth interaction with key informants showed that these initiatives are not moving at the same rate in terms of digital technology. Digital Literacy highly absent in both the training and assessment making it hard to achieve the government strategic objectives but at the same time provide the ideal training required by the private sector in the face of proliferation of information technology.

The survey findings also indicate that enrolment of students in public BTVET Institutions has been on the increase and projected to increase further as a result of efforts both in the formal and informal sector training. This revelation demands not only creation of new Institutions but also working on the existing digital technology so as to move with the real world of work. The enrolment projections in technical education currently stand as follows.

Table 1: Enrolment Projections in BTVET Institutions



Analysis of the available information and the prospected enrolment increase imply an increase in number of Instructors in the Technical Institutions. The findings however, show that there are limited incentives for skilled technicians that must work according to 21st Century employers' demands in the technology age that require Digital Literacy. Preliminary information show that the current Ugandan Strategic Plan itself and situation in the Technical Institutions seem not support and or is not moving in that direction as it is silent on key ICT or computer facilities, their use and application that could play a key role on Continuous Based Assessment. For instance a critical analysis of the whole Strategic Plan show no planned investment in the digital media/ICT in terms of facilities and training to match the good intentions of promoting access to disadvantaged groups into skills development, improving effectiveness in general technical and vocational education training, creation of more awareness and above all expanding private sector training.

4.1.2 Practical ways of applying digital technology by technical institutions

Basic information was sought on the key areas where Digital Literacy can be applicable so as to be able to identify the gaps in the CBA and generally overcoming implementation challenges by both the training institutions and UBTEB as an Examination Board. Preliminary information was thus mainly collected on the percentage of computer usage as a key tool in Digital Literacy.

The findings show that Instructors apply digital technology mainly with regard to writing reports, development of class test, keeping examination records, making classroom presentations, processing results and providing feedback to learners. Table 2 below shows the percentage responses of those interviewed in the survey.

Table 2: Percentage distribution on the forms of Computer usage

Computer usage	Respondents	Percentage
Development of test items	19	62
Keeping Records	16	52
Writing Reports	14	47
Processing of Results	11	35
Classroom Presentations	5	17
Internet/use of email messaging	2	5
Providing feedback to learners	2	5

Development of class tests came first in terms of computer usage and this accounted for 62 percent. However, in-depth interaction with some selected key informants show that most of the Instructors do this because this was a requirement by the administration of the institution and hence it is more of a routine condition that can't be done away with than being appreciated in the teaching learning process. Thus appreciation of Digital Literacy only stops at test item development and not applied in the CBA hence limiting the learners regarding feedback mechanisms.

Keeping records came second in computer usage and this was 52 percent. The record keeping however, was general records and did not focus on the usage in the CBA. Whereas the findings from the survey show that CBA was cited to be one the most preferred form of assessment that was being appreciated and not imposed by UBTEB as an imposed by the examination board, not much attention has been given to the form regarding its usage using ICT. Such keeping of records could be used better through Digital Literacy facilities so as to become a key tool in the training and assessment process. Key informants surveyed strongly supported this form of assessment but hastened to add that the key challenge is the cumbersome nature of manually recording marks from the various tasks and assignments given to the learners and the absence of a quick reporting mechanisms to the Examination Board.

Findings from the survey show that the usage of computer in terms of writing reports was ranked third in usage at 47 percent. Close discussion with the Instructors indicated that it is mainly those with administrative responsibilities that use more the computer in writing administrative reports other than those directly connected to the assessment of learners.

Processing of results through the use of computers had limited coverage. Only 35 percent of the people interviewed indicated that they use computer to process results. The survey however, found out that, there is no easy digital literacy mechanism used to facilitate the transfer of the results of the CBA to UBTEB which is the Centre of assessment. This leads to various challenges in final examination result processing and causes delays in the release of the national examination results of all institutions as some institutions submit CBA results even after final examinations are done. Thus the appreciation and adoption of digital literacy would play a key role to rectify the situation. This could be a software package that allows automatic updates of the results during the continuous assessment period.

The findings of the survey indicated that only a small percentage of the Instructors in the selected Technical Institutions use computers for classroom presentation and this was 17 percent. The

implication is that the graduates are likely to be bypassed by the growing advancement in technology. The presentation would be important also as a good feedback mechanism to learners.

The survey results show an attempt to use internet to submit results of the CBA to UBTEB as some institutions send email attachments of the scanned copies of results. This contributes greatly to fast processing of the results from such institutions. However, this is only 5 percent implying that 95 percent of the Instructors cannot be able to utilize the internet facilities for result processing either due to accessibility issues or lack of computer skills or innovation to in the CBA using Digital Literacy.

The survey results show a negligible percent of the use of computer in the provision feed back to the learners and this was only 5 percent. This denies the learners quick acquisition of skills so as to move with the advancement in technology. The Technical Institutions cannot quickly identify the learning gaps appropriately.

The survey also observed that there is limited number of computers in the Technical Institutions that compounds the problem of usage by the Instructors. The few available ones are meant for training of students. The majority of the Instructors however, reported that they did not use computers for any teaching and learning activities other than training students meant to do computer practical examinations.

Table 3: Accessibility to Digital literacy Facilities

Easy Accessibility to digital facilities	Respondents	Percentage
Computer	17	56
Digital camera	8	27
Access to video equipment	3	9
Access to internet	2	8

The table above multiple responses and indicate that 56 percent of the College Instructors that took part in the survey had easy access to a computer as the easiest accessible type of technology within their means. There is also a relatively high percentage (27 percent) of those that can easily access digital camera, 9 percent for video equipment and only 8 percent indicated easy internet accessibility. Key areas where results and other records could easily be shared using digital literacy for good feedback approaches are conspicuously unattended or the Digital Literacy devices are not necessarily for CBA that would have produced good results. Whereas these preliminary findings show that some Instructors can access some ICT services, the extent of their application in the absence of key supporting services like internet makes the expectations low hence not easily applied in the continuous based assessment.

4.2. Conceptual Discussions

The aforementioned presentation of the preliminary survey results show a great need for innovations in the area of Digital Literacy. This should be done using all possible forms of technological devices including computers, CD-Roms, digital cameras, video cameras, and interner. Technology related assessments need to be interwoven with learning so that pedagogical skills among the Instructors are not left behind in guiding technological innovations as argued by Redecker and Johannssen (2013).
On the issue of access to ICT facilities, the preliminary survey findings indicate internet and email services are almost none-existent in all the selected Institutions. There is limited availability of computers and or lack of required skills by the Instructors to access the internet services. Part of the explanation could be the prioritization amidst competing demands given the limited resources. This calls for a guiding technological innovation alongside the Continuous Based Assessment. This is addition to lack of other facilities including software packages, computer consumables and other ICT equipment like digital camera. This implies that support is not only required in making budget provisions to purchase computers and other ICT facilities but also general Digital Literacy skills to the Instructors.

The findings of the survey on the new and emerging challenges in technologies are supported by arguments of Adebayo and Fagbohun (2013) who states that the traditional process of teaching and learning and the way education is managed require a fundamental change using ICT. Digital technology provides instant access to vast array of data, challenging assimilation and assessment skills including access to ICTs in the home, at work, and in educational establishment, hence making learning a truly lifelong activity- an activity in which the pace of technological change forces constant evaluation of teaching process itself.

Findings of this survey are also strongly supported by studies regarding limited Instructors' competencies, inadequate digital and or other ICT facilities, lack of motivation to adopt information technology that is evolving and increasingly changing to assist assessment of learners as Anekwe and Ofoefuna (2009) argues. The similar arguments have been advanced by Ronelle Vos (2010) that digital technology must be considered within a broad and integral perspective. It should lead to a digital dimension that come bring the king of innovation required in the 21st Century and an improvement in the assessment arena.

5. CONCLUSION AND POLICY OPTIONS

5. 1 Conclusion

The results from this survey provide additional information on Instructors assessment beliefs and practices as well as use of computers as key tools for teaching, learning and assessment processes. These findings provide critical insights on key factors to address when introducing and implementing a computerized CBA system to assist in training and examination processing by Examinations Boards. This paper argues for a paradigm shift to adopt the use of Digital Literacy in Continuous Based Assessment so as to meet the growing demand for better skills in technical training.

5.2 Policy Options.

Key policy options can be recommended;

i. There is need for urgent implementation of technology-related projects so as to tap the benefits of causal-links in real life interventions. Specialized tailor made software can be developed to help in CBA in Technical Institutions in Uganda. Efforts could be made in

the use of practical tasks of digital tools like mobile devices, digital cameras and internet services for supporting Digital Literacy usage and awareness.

ii. There is need to carry out a comprehensive needs assessment to document institutional, societal and personal factors that could affect the success of technology-related projects in Technical Institutions in Uganda.

iii. There is need to go beyond the current practice of Instructors using computers for just recording marks, writing reports and developing test items but to play a key role in the CBA through provision of feedback to learners during training and easy processing of results by the Examination Boards. This could be done by creating tailor made electronic assessment tools that can be developed by the Instructors themselves assisted by technocrats in the field of ICT.

iv. There should be effort for internet connectivity followed by training programs to the Instructors to enhance computer usage in Technical Institutions.

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