KTTC's eLearning Readiness Survey (2013)

Robert Okinda, e-Learning Coordinator, Kenya Technical Teachers College
raokinda@gmail.com

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INTRODUCTION

The expansion in the use of the Internet in the mid-1990s has substantially changed the characteristics of distance education, initially in developed countries and increasingly in developing countries. The change involves updating or replacement of earlier modes of distance education, such as correspondence courses, radio-based courses, video-taped lectures with Internet-and computer based modes of delivery (NCES, 1999).

The effective use of e-learning in technical education institutions would also ensure that tertiary level workforce effectively participate in the emerging global knowledge economy. Globally, educational institutions faced with the challenge of successfully adopting e-learning are beginning realize that the successful adoption of e-learning requires an assessment of the institution's e-learning readiness. Recent studies (Hussin, Manap, Amir & Krish, 2012; Soydala, Alır & Ünal, 2011; Masood & Ngah, 2010) emphasize the importance of readiness of the e-learning enablers and learners for successful implementation of e-learning.

E-learning readiness is the assessment of certain organizational and individual factors that should be considered if organizations are likely to be successful with the introduction of an e-learning strategy (Chapnick 2000; Redmon and Salopek 2000; Hall 2001:2; Rosenberg 2001). This assessment is part of the organization's initial needs analysis, which is defined by DeSimone and Harris (1998) as a process used to better understand the characteristics of the organization to determine where training and HRD efforts are needed and the conditions within which they will be conducted.

The KTTC 2013 e-readiness baseline survey was intended to provide data on the dimensions of e-learning readiness including users, enabling technology, institution's culture and the environment. To achieve the objectives of this survey, Engholm's model of e-learning readiness was used. This model, unlike Bakry's STOPE model, Bekim Fetaji and Majlinda Fetaji's Model, Chapnick's Model, Li-An Ho's model, Haney's Model, Chai Lee et al's Model and Rodgers's Diffusion Model is a pedagogically superior framework for assessing KTTC's e-learning readiness. Engholm's model provides managers and persons in the field of training and development with a useful tool in the assessment of their respective organization's readiness for e-learning. This survey adopted the model to assess KTTC's level of preparedness to utilize e-learning technologies (e-LTs) to improve access, inclusion and quality of technical teacher education in the country and the region.

The purpose of this survey is to assess the level of KTTC's e-learning readiness, challenges that may impede its adoption and measures that can be taken to mitigate these challenges. The main objectives for carrying out the e-learning readiness survey are to assess the level of e-learning readiness at KTTC by establishing a baseline aggregative index and to recommend activities to improve e-learning readiness that facilitate effective deployment of e-learning technologies in teaching, learning and research at KTTC.

LITERATURE REVIEW

E-Learning readiness assessment helps organizations to design e-learning strategies comprehensively and to implement its ICT goals effectively (Kaur & Abas, 2004).Learners must also be e-ready so that a coherent and achievable strategy, tailored to meet their needs, may be implemented (infodev, 2001). E-learning readiness assessment provides key

information to organizations to supply solutions which can cater to the specific needs of each learning group (McConnell International, 2000).

In the context of KTTC, the imperative to analyze the need for e-learning is contained in the performance contracting targets for 2012-2013. This represents the first step in the redesign of instruction at the college - away from the predominant face to face model to the blended model and later to the pure e-learning model. As presented in Figure 2.1, showing the ADDIE model of instructional design, assessing e-learning readiness is a prerequisite to the design, development and implementation of a new instructional method.

**Figure 2.1 Theoretical Framework**
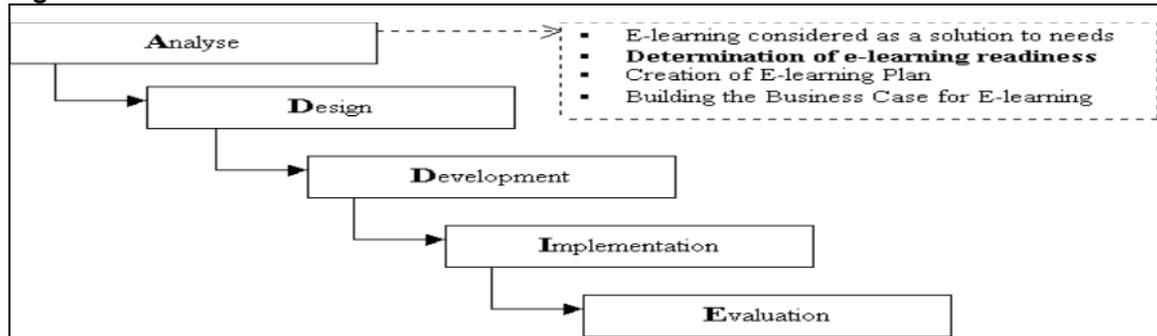
Literature on e-readiness is replete with models that may not capture the essence of e-learning as innovative instructional design. As Peter (2005) notes that no model is ideal and it is adequate to adopt a model that covers all possible challenges and delivers the complete set of required data.

Conceptual Framework for e-learning

Engholm's (2001) model for e-learning readiness provides factors suited for assessing readiness to adopt a blended approach to training and development. The model is considered appropriate for KTTC which has adopted a blended e-learning strategy that is commensurate with its level of integration of ICT in training and management. According to Engholms' study, respondents did not see e-learning as a solution to all their future training requirements. Rather, e-learning would be another training strategy readiness at KTTC, as much as face-to-face, and part of a blended approach. Engholms' e-readiness factors consisting of individual learners, organizations' culture, technology, content, organizational, and industry factors, formed that basis of the assessment of e-learning readiness at KTTC.

Figure 2.2: E-learning Readiness Conceptual Framework
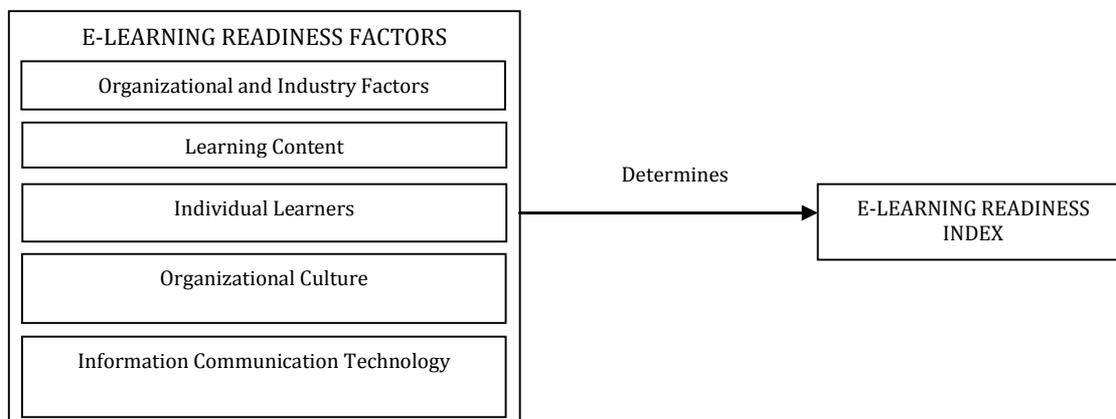
Adapted from Engholm (2001)

Methodology

A survey design was used to capture the respondents' perception of the level of e-learning readiness along the five dimensions using a five point Likert scale. The population under study was 1724; 114 lecturers, 591 regular students and 1,019 holiday students. Sample included 172 respondents, representing 10% of the population. Self-administered questionnaires and interview schedules were used to collect data from the respondents. The survey was carried out in two phases starting with the holiday students, during the final week of the 2013 April holiday session, followed by the regular students in the last week of June 2013.

Analysis and Findings

E-learning readiness for each dimension of the five factors considered was measured by asking respondents to rate the extent to which they agreed with statements on the sub-factors considered in each category on a five point Likert scale, where 1 represented Strongly Disagree and 5 strongly agree. In determining the percentage of relative readiness, agree and strongly agree were aggregated as agree. An index of 56.2% readiness level was arrived at by aggregating the individual readiness levels of the five factors as under:

Readiness factors	Aggregate level of readiness
Individual learners	86.7 %
Content	62.8 %
Information and communication technologies	66.4 %
Organizational culture	33.0 %
Organization and industry	32.1 %
KTTC's baseline e-learning readiness	**56.2 %**

Individual Learners

Individual learners at KTTC are ready for e-learning at an index of 86.7 %. Given that that 94.6 % of the learners were willing to collaborate, share information and share knowledge, 92.5 % can take responsibility and manage time for own learning, 91.4 % are motivated and willing to use computers for learning, 91.4 % see the need for e-learning, 84.8 % see e-learning as a viable alternative to traditional methods and 66.3% of the learners are positive about themselves, KTTC learners aspirations concur with constructivist, connectivist and andragogist theories and are thus ready for e-learning.

E-Learning requires that learners have basic literacy skills that would enable them to comfortably use ICT for learning. Given that 93.5 % have basic computer skills, 88.0 % have basic computer literacy skills and 78.0 % are comfortable using computers indicate that KTTC learners are ready for e-learning.

Information and Communication Technologies

KTTC's ICT infrastructure is e-ready, at an index of 62.8 %. Accessibility to internet while in college (78.6 %), on mobile phones (71.5 %) and when not in college (53.8 %) were pointed out. Respondents also indicated that they have access to computers while in college (68.8 %) and when not in college (50.0 %). Accessibility to internet and computers while in college is comparatively higher, ostensibly due to a deliberate effort by the Government of Kenya to embed ICT infrastructure in educational institutions through the Kenya Education Sector Support Programme (KESSP). Through this programme, an ICT centre, replete with computers and related accessories was put in place. Internet connectivity was also enhanced through connectivity using fibre optic cables at subsidised rates.

Wireless internet connectivity is also available within the college precincts through broadband connectivity. 82538However, accessibility to internet and computers when not in college is comparatively low. Such learners access computers and internet through cyber cafes that are available in virtually every market centre throughout the country, though at exorbitant cost.

Internet connectivity within the college is reliable (71.5 %), learners and teachers have easy and fast access to the network (66.3 %), learners have difficulty accessing reliable internet connectivity when they are not in college (48.4 %), and bandwidth issues do not hamper the e-learning effort (28.7 %). Use of fibre optic cables enabled fast and reliable internet connectivity within the college precincts, though a challenge when they are not in college because fibre optic cables have only been laid in major cities. The findings also imply that over 70 % of the respondents were in agreement that bandwidth hamper e-learning efforts.

ICT department is well resourced and used (67.4 %), communication with the ICT department is strong (68.2 %) and, ICT infrastructure can efficiently host its e-learning content (67.4 %). Security issues are also resolved, as 71.5 % stated that network systems and components are compatible. Requisition for ICT equipments is done using the bottom-up approach. Policies relating to use of ICT equipment are available for all users through the institution's website.

Content
On aggregate, 66.4 % readiness level was established for content development. KTTC's e-learning content that is taught is interactive (68.1 %), attracts and keeps learners using the system (67.4 %), appropriately targets learners (73.3 %) and accommodate different learning styles (70.8 %). The e-learning content is feasible to be taught over the computer, as the design is simple, user-friendly, flexible, intuitive and conducive (61.2 %), up-to-date, relevant, appealing and user-friendly (61.1 %), and, it is user-friendly, well structured, and interesting (65.2 %).

 KTTC has initiated the development of content suitable for e-learning (61.0 %), which is easy to create and put over the network (62.5 %) and is easy to update and modify (73.6 %). Management, teaching staff and technical staff have undergone capacity building programmes aimed at implementing flexible and blended approaches to teaching and learning. Institutional policies for flexible and blended skills development are also being developed, as it is assumed that the four modes of delivery are identical, not similar.

Organizational Culture
While a supporting culture is an important determinant of e-learning readiness, KTTC readiness score on this factor stood at 33.0 %. Top management support is evident from the practice where each department conducts skills gap analysis and thereafter prepares five-year and yearly training plans for building capacity of staff in various skill areas. E-learning is also included as the avant-garde for increasing access to quality technical training at KTTC in the 2012-2017 Strategic Plan. Further, the institution's 2012-2013 performance contract sets out a target that by July 2013, its Higher Diploma in Education Management course be digitized and hosted on its e-learning platform.

Survey results point at a 30 % low level of organizational culture readiness. Perhaps this may be attributed to lack of knowledge by staff and students owing to inadequate policy dissemination. Results also show that 60.6 % of respondents agree that top management supports the use of internet for learning purposes. This may be attributable to deliberate government efforts of embedding ICT infrastructure in all TIVET institutions in the country, coupled with donor support. Further, survey data shows that 52.4 % of the respondents agree that learners are given time and opportunities to learn, a reflection of the fact that the ICT & Open Learning department allows time and opportunity to learn using internet at the KTTC's Learning Resource Centre (LRC).

Survey results suggest that 45.9 % of respondents agree that learning using the internet is accepted and communicated at all levels. However, only 30.0 % of the teachers and trainees surveyed agree that the requirement to do some e-learning is explained to learners at orientation, yet only 25.1 % of learners have previous knowledge about e-learning. While 32.2 % agree that from the support for use of the internet training and learning using internet is seen as an investment and not as a cost. The conventional view at the institution is that e-learning is about continuous integration of ICT into teaching and learning yet e-learning involves more than use of ICT. Perhaps this explains why 42.1 % of the respondents were of the view that the right people for implementing e-learning were in place. An alternative explanation would be from the

e-learning training that departmental e-learning representative had during the month of June 2013. The training is part of the continuous capacity building workshops for early e-learning adopters within the college. This training involved use of MOODLE to familiarise potential tutors with the environment for e-learning.

Indeed the survey results point at the low level of exposure to an LMS at KTTC with only 27.8 % agreeing that there is a Learning Management Systems that support learners to get e-learning content such as lecture notes and PowerPoint slides. This perhaps points at the fact that despite the college installing MOODLE early in the year most of the respondents were not aware of its existence as usage has not been rolled out officially.

Only 27.3 % of the respondents agreed that there is an e-learning initiative that enables employees and students to purchase computer equipment for a heavily subsidized price. Perhaps these respondents did not distinguish between the current policy on acquisition of infrastructure and that envisioned in the survey. The study envisions a project that will transfer ownership of equipment to users who acquire them through institutional credit facilities as they join the college. The current model of financing involves students paying a minimal amount to cover for the cost of internet connectivity and the use of institution's computers at the library, computer labs or the LRC.

A further point of confusion by 23.4 % of the respondents who agree that e-learning strategy is aligned to broader KTTC goals and strategies and 16.4 % who may have mistaken the existence of an ICT policy for an e-learning strategy and concurred that e-learning processes and logistics are clearly articulated and followed at KTTC. Currently KTTC has no e-learning policy defining access to and use of its e-learning resources. The practice however is to have most of the employees to have access to computers and internet from the LRC as no e-learning strategy to initiate anytime, anywhere access to e-learning resources, including the portal. Thus at the baseline, the e-learning coordinating unit is in the process of developing an e-learning policy and strategy.

Organizational and Industry
A readiness level of 32.1 % was determined for the organization and industry factor at KTTC. The low readiness level suggests that internal environment of KTTC may hinder efforts to adopt e-learning as a mode of delivery. Despite being the only institution that offers technical teacher training in the region, it is facing generic competition for students following the massification of university education in Kenya.

Introduction of e-learning might enable KTTC to reclaim its position as a hub of technical teacher training in Africa. In the early 80's, KTTC had students hailing from the sub-Sahara region, including Zambia, Malawi and Botswana, among others. In the year 2012, there were students from Rwanda who went through the technical education teacher programme. Other than for the foreign students, admission for local students is designed such that all counties are represented. Further, KTTC has two campuses; Marsabit and Narok that are nearing completion. All these are likely to make e-learning a potent approach to serving a geographically dispersed population.

Only 45.5 % of respondents agreed that KTTC environment was dynamic enough. On the other hand 43.8 % acknowledged the high level of competition in the technical training industry and 31.0% felt that KTTC operates in an environment where its e-learning solution needs to meet legal requirements such as licenses.

As a public institution, KTTC has a need for quick delivery and access to knowledge and information (18.7 %), which is facilitated by its organizational structure (45.9 %) in a high risk, high compliance technical teacher training market requiring continuing skill development (32.0 %). Only 41.8 % of the respondents agreed that KTTC is mainly funded by the government and is relatively financially stable, with a budget for large short-term expenditures for e-learning and adequate resources for the introduction of e-learning (27.0 %). Initially, the Government used

the KESSP programme to embed ICT infrastructure to tertiary institutions, as evidenced at KTTC by construction of the ICT centre and acquisition of computers and related accessories. Currently, the Directorate of e-Government is facilitating internet connectivity to TIVET institutions through fibre optic cables, hosts the institution's LMS and provides institutional support. It is also a requirement from government that each tertiary institution allocates 10 % of its budget to development of ICT, which is good enough to initialize and operationalize e-learning.

Recommendations
Several recommendations can be made to enhance KTTC's readiness for initialization and operationalization of e-learning. For individual learners, course content to be developed should adopt the flexible and blended approach, modelled on constructivist, connectivist and adragogist theories. Mechanisms should also be put in place to motivate learners to pursue online courses.

On Information and Communication Technologies, a deliberate effort should be made to enhance accessibility to reliable and fast internet connectivity and other ICT's for learning and research. Technical support to learners and lecturers should be facilitated. College information and e-content should be secured at all times.

Content for Diploma in Technical Education and Technical Education Programme Diploma courses should be developed from the existing curriculum. Curriculum for flexible skill courses should be developed and be approved by the academic committee before they are launched. Off-the-shelf content can also be availed for specialized areas where local expertise for content development is not available. Open educational resources should be used for development of e-content.

On organizational culture, a team should be set up to initialize and operationalize use of KTTC's LMS and prepare an implementation plan. A training plan should be developed to build capacity of staff in e-learning management, instructional design, tutoring, content development and quality assurance. Change management strategies should also be put in place to orient staff and learners on the positives to embracing e-learning. KTTC's e-learning strategy should be developed and linked to the overall strategy and goals. To improve on organizational and industry factors, efforts should be made to publicize and market e-courses. Work plans and training plans should be developed and aligned to strategic plans. Funds should also be allocated for efficient and effective operationalization of e-learning.

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