Facing ICTs and e-learning environment: An investigation from the graduates registered in the first batch of e-learners under PanAfrican Tele-Education programs in Rwanda

Irénée Ndayambaje
Faculty of Education, University of Rwanda - College of Education

Abstract

This study endeavored to highlight the experiences of the first batch of e-learners under Tele-Education program the courses of which started in September 2009 at former Kigali Institute of Education (KIE). The researcher adopted a descriptive research design whereby recorded views were analyzed both qualitatively and quantitatively. In order to attain its objectives, the researcher identified and investigated 17 graduates from the program using structured interview and focus group discussions. The findings revealed that none of the graduates had previously undertaken an ICT based course or program. Hence, this learning mode was quite a discovery to all the e-learners. It is this shared novelty of the candidates and the imperatives of the program that led the candidates to devise strategies to cope with ICTs, the e-learning environment itself and managing further responsibilities. Adopted strategies included individual commitment, teaming, seeking assistance from peer learners and personnel of Tele-Education learning centre and improving computer skills. In line with the expressed encountered challenges related to English as a medium of instruction, shortage of time to interact and attempt the assignments, limited opportunities to practice acquisitions, the researcher proposed remedial solutions. In addition, areas for further studies were recommended.

Résumé

Cette étude s'est efforcée d'illustrer les expériences de la première fournée d'e-apprenants enregistrés dans les programmes de Télé-éducation dont les cours furent introduits au sein de l'ancien Institut Supérieur Pédagogique de Kigali (KIE) en septembre 2009. Le chercheur a entrepris le modèle descriptif là où les avis des répondants furent enregistrés et analysés tant qualitativement que quantitativement. Pour atteindre ses objectifs, le chercheur a identifié et enquêté 17 diplômés dans le programme utilisant l'interview structuré et la discussion de groupe. Les conclusions ont révélé qu'aucun des diplômés n'avait auparavant entrepris un cours ou le programme par l'intermédiaire des Nouvelles Technologies de l'Information et de la Communication (NTIC). Par conséquent, ce mode d'apprentissage était une vraie découverte à tous. C'est ce caractère novice partagé des candidats et des impératifs du programme qui menèrent des candidats à concevoir des stratégies de se familiariser avec les NTIC, l'environnement d'apprentissage électronique lui-même et gérer d'autres responsabilités. Parmi les stratégies clé adoptées furent cités l'engagement individuel, le travail d'équipe, chercher l'assistance aux près des pairs et du personnel du centre d'apprentissage de télé-éducation et enfin l'amélioration des compétences informatiques. En définitive, suivant les défis exprimés tels que l''Anglais comme langue véhiculaire de l'instruction, l'insuffisance de temps pour plus d'interactions, les opportunités limitées de pratiquer les connaissances acquises, le chercheur a proposé des remèdes. En plus, les sujets pour des recherches ultérieures ont été recommandés.

Keywords: Pan-African eNetwork Tele-Education, synchronous and asynchronous communication

Introduction

The rise and easy use of ICTs emerged as an opportunity to support lifelong learning, explore new forms of learning, increase enrollments and widen participation regardless of people's geographical locations and contexts. It is in this regard that e-learning is nowadays one of the top technologies used for educational purposes.

As documented by Urdan & Weggen (2000), one of the reasons that give power to e-learning is its potential to alleviate the knowledge gaps and use of computers or electronic devices both in synchronous (live) and asynchronous modes across time and place. Therefore, Tele-Education programs that have been hosted by

former Kigali Institute of Education (now College of Education, University of Rwanda) since 2009 are part of these new trends in education, which responds to the Rwandan Government's strive to transform the country into a knowledge-based economy through both the adoption and application of ICTs in all sectors.

Research questions

- The study intended to answer the following research questions:
- How do e-learners get used to ICTs and the e-learning environment?
- What individual and collective strategies do e-learners adopt as they study?
- What are the major challenges experienced by e-learners and how can these be addressed?

Methodology

In order to investigate into the experiences of the graduates of the first batch of e-learners under PanAfrican Tele-Education programmes at Rwanda Learning centre hosted by former the College of Education of University of Rwanda, the researcher reviewed existing literature after which he went through the existing files of first batch of Amity University graduates to find out contacts and addresses for potential interviewees. Interviewees were drawn from the graduates of both undergraduate and postgraduate courses of the first cohort enrolled in September 2009.

It was based on the available data that purposively and in the limit of the means the researcher planned and conducted individual interviews (12 interviewees) and the focus group discussion (5 participants), which turns out to be the total of 17 graduates representing 10.8% of the 157 graduates who appeared in three consecutive virtual convocation/graduations. Such a sample was supported by Nwana (1981) who argues that "*no fixed number and no fixed percentage is ideal, rather it is the circumstances of the study situation that determines what number or what percentage of the population should be studied*".

As the study was dominantly qualitative data were organized and discussed thematically. This means that the designed question were mostly about 'what', 'how' or 'why'; aiming to understand the experiences and attitudes as explained by Quinn and Cochran (2002). Besides, quantitative aspects of the responses were presented in forms of percentages.

Understanding the concepts of e-Learning and Tele-Education

The "e" in e-learning stands for the word "electronic". Therefore, e-learning reflects "*all educational activities that are carried out by individuals or groups working online or offline, synchronously or asynchronously via networked or standalone computers and other electronic devices. It uses instructional media consisting of text, video, audio, graphics, animation, or any combination thereof*" (Romiszowski, 2004).

In the view of Knowledge and Learning Systems Group coined as NCSA, Gallaher et al. (2000) aver that the concept e-learning entails the acquisition and use of knowledge distributed and facilitated primarily by electronic means. This implies that e-learning comprises all forms of electronically supported learning and teaching. According to Naidu (2003), the philosophy and practice of e-learning opposes the traditional classroom

instruction, which is time and place bound, face-to-face, typically conducted in fixed educational setting and primarily consisting of a lecture/note-taking model. Summarily, Romiszowski (2004) presents e-learning under four major types or modalities:

Individualized self-paced e-learning online whereby an independent learner accesses study materials fully availed online via an Intranet or the Internet.

Individualized self-paced e-learning offline which refers to situations where the candidate uses learning resources such as a database or a computer-assisted learning package offline (i.e., while not being connected to an Intranet or the Internet, learning materials are recorded or saved on a device such as hard drive, a CD or DVD).

Group-based e-learning synchronously which refers to situations where groups of learners work together in real time via an Intranet or the Internet. This may include text-based conferencing, and one or two-way audio and video conferencing. This is the type used for *Tele-Education* live classes.

Group-based e-learning asynchronously which refers to situations where groups of learners work over an Intranet or the Internet and exchanges among participants occur with a time delay (i.e., not in real time). Typical examples of this kind of activity include on-line discussions via electronic mailing lists and text-based conferencing within learning managements systems.

The background of Pan-African e-Network and Tele-Education learning centre at KIE

As presented by Upadhyay (2009), the lofty idea of this network conceived by Dr. A P J Abdul Kalam, the former President of India's vision of accelerated socio-economic development of Africa. During his inaugural address to the African Parliament in Johannesburg on 16th September 2004, Dr. Kalam proposed to connect all 53 African Union (AU) Member States with India with a satellite and fibre-optic network to share India's expertise in the fields of Education and Health care. AU accepted the Indian proposal and signed an umbrella Memorandum of Understanding (MoU) with the Government of India on 27th October 2005 (through the Ministry of External Affairs – Nodal Ministry). The Government of India appointed Telecommunications Consultants India Ltd (TCIL) as the turnkey to implement the project. The network provides e-Services with priority on Tele-education, Tele-medicine, and VVIP Connectivity (video-conferencing and VoP among the Heads of African States).

From the above framework, on 23rd March 2007, a country agreement between Rwanda represented by the Ambassador of the Republic of Rwanda in India and the Chairman and Managing Director of (TCIL) was signed. Thereafter, the Ministry of Education of Rwanda has handed to former Kigali Institute of Education (KIE) the responsibilities of hosting the learning centre which was officially inaugurated on 26th February 2009. The launch of the Tele-Education learning centre was –in different times- followed by the signing of MoUs with Indian university partners of the Pan-African e-Network.

The Tele-Education learning centre hosted by former KIE recruited the first intake of 166 e-learners for Undergraduate and Postgraduate programmes on offer by Amity University in September 2009. Out of the 166

first batch e-learners, 157 graduated in three virtual convocations held in the past namely in December 2010, December 2011 and December 2012.

It goes without saying that apart from Amity University which has been the first partner (from which graduates were also investigated in this study) four more Indian universities are running their courses leading to Certificates, Diplomas, Postgraduate Diploma, Bachelor's Degrees and Master's Degrees. These universities are namely Indira Gandhi National Open University (IGNOU), University of Madras (UNOM), Birla Institute of Technology and Science (BITS) and Delhi University (DU).

Operations and technologies under PanAfrican Tele-Education

Learners under Tele-education programmes are first of all called to attend live interactive sessions conducted via the physical tele-education studio/learning centres established in each African partner country. These studios are connected to the respective Indian universities and per schedule. Hence, learners from various African learning centres are engaged in a real-time chat or an audio-videoconference by the remote lecturers in a studio located in one of the Indian partnering University via VSAT-based Terminal with associated equipments such as computers, cameras, LCD projectors, IP phones, etc.

Apart from these synchronous live sessions which actually take between 2 and 6 hours a week, e-learners do most of the work in an asynchronous way and interact with the lecturer using emails. Their own efforts are also determinants and they are called to learn, revise and enrich independently the learnt contents. In fact, they rely much on the sessions recorded on tele-education portal (http://125.16.61.40/v-learn /index.jsp) that they access by using a personal user ID and password. Learning materials are in form of multimedia content (text, audio and video) that can be accessed anytime, anywhere via Internet or offline once the candidate has downloaded and saved these Learning materials on an external hard driver/computer.

With Amity University, the assignments are provided and submitted strictly online. Examinations are conducted offline using Optical Mark Reader (OMR) answer sheets. Graduations/convocations are also organized virtually in the same way as live sessions. The registration process is also online although the hard copy application files are also sent for record and verification purposes. Degrees and transcripts are produced with high technology and sent via courier to be distributed to the respective candidates. Although students are fully sponsored in terms of tuition and technology related costs covered by the project at KIE, e-learners are called to pay for different facilitation services (computer labs, learning venue, students cards, among others) in terms of operational fees fixed at 100,000 Rwf for certificate/Diploma/Bachelor's students and to 150,000 Rwf for postgraduate/Master's students per semester.

Findings and discussion

Getting used to ICTs and e-learning environment

Through interview guide and focus group discussions, very few of the respondents (24%) especially those who registered for undergraduate courses could assert that they had enough computer skills at the beginning of the course against 76% who had not. One of them revealed: *"To tell the truth, even if I had an email address by the*

time we applied, I always had to request for assistance from a friend or an agent in a cyber café whenever I wanted to access or write an email, which always cost me a lot of money because 100 Rwf paid to subscribe for 15 minutes would expire having hardly opened my email account because of poor knowledge of how to manage the internet interface associated with very poor mastery of the computer keyboard".

As expected, the above quote makes one wonder how the first e-learners got used to deal with ICTs and e-learning environment and deduct that e-learners had a lot of problems and worries to put up with as they started the course. However, the overwhelmingly large majority of respondents (91%) revealed that once one is motivated and committed to do something or has a desire to satisfy, all his/her activities end in success. It is in this respect that many (67%) had to request for coaching from friends, others (9%) had to visit several times the KIE computer lab which was put at their disposal while others (11%) decided to purchase their own laptops on which they could practise and keep study materials. Factually, a very high majority of respondents (84%) acknowledged the contribution of the learning centre in following words: *"tele-education IT staff played an important and continuous role as they had among their key responsibilities to assist students. The assistance ranged from conducting live tele-education classes (using the projector, camera, screen, microphone and telephone line all connected to the Panafrican satellites broad band) and ensuring that each student has a private username and password enabling him/her to download and upload study materials via the learning portal".*

Adaptivity and access to ICTs are crucial for learners' success in e-learning mode. It is in this regards that Kareal & Klema (2006) assert that computer competence, computer ownership, computer training, education, and e-learning experiences are among the general factors affecting e-learners. In the same line of view, Jackson et al. (2001) contend that there is a clear relationship between technological literacy and facilitation to education. However, as experienced by the interviewees and backed by Kevin's (2006) research findings, "*a high level of IT skills is not such a determinant factor. E-learning does require a basic 'entry level' of IT skill",* which was not the case for all individuals under the present study since only 24% aver to have had enough computer skills at the time of entry*, "but provided the learner can log on, use a mouse and find their way around a keyboard, their success has far more to do with their motivation to learn than their depth of IT skills*". This would justify the reason why no single interviewee reported a case whereby a candidate failed or abandoned because of poor IT skills. Rather, it concurs with the respondents' assertion that a person's activities end in success all the time he/she is motivated and committed.

Individual and collective strategies adopted by e-learners

In any academic programme, learners are expected to fulfill specific requirements upon satisfaction of which they are awarded certificates or degrees. It has been the same for Pan-African Tele-education programmes as reported by interviewees. The special attributes here relate to the nature and context of e-learning. In actual facts, a tremendously big majority of interviewees (88%) revealed that e-learners are not compelled to be in a fixed location all the times as it has been the case for all the investigated interviewees by the time they were doing previous studies either in Rwanda or abroad. One of them revealed: "*I do remember that we were all*

requested to attend without failure the live sessions organized once a week and this in the afternoons. But, expect for a few sessions at the beginning, we never all attended classes a hundred per cent. There were always excuses related to work, health status and social responsibility". Asked about how the pass rate during fresh examinations was excellent with such a situation, one of the respondents said: "*we have been very lucky. All sessions were progressively recorded and well arranged on the Pan-African portal in such a way that those who were present or absent could anywhere and at their flexible time access and visualize both the PowerPoint presentation and the video of non-attended sessions. Actually, the learning centre administration has been very active and used to send timely important communications that helped a lot. At the university side, they were also much committed to ensure maximum pass rate and satisfaction of the students. Regular logistic live meetings were organized and our emails promptly entertained".*

During the focus group discussions, respondents revealed many other secrets/tips engaged. All respondents (100%) agree on specific and particular matters like time management, high level of commitment and responsibility, study in groups, attempting past papers available online as they prepared end of semester examinations. Additionally, they used to call each other and send each other's short messages via telephone for any incoming urgent and important communication as not everybody was fully connected. Some postgraduate students went ahead even to create mail groups to share whatever information and study materials that could help. Importantly, interviewed candidates reported that they used to meet to debate collective/ individual special cases and have home visit for those who got discouraged for various reasons.

The above strategies are supported by the theory of social constructivism/communities of practice as originated from the Russian Vygotsky as quoted by Beetham (2002) where this last author writes: "*learners are also social beings, trying to make sense of the learning situation, to meet (or perhaps to challenge) the expectations of their tutor and peers, and to feel valued as a person*". Apart from this teaming character, individual e-learner has to be internally motivated and the system itself has to be rewarding; which is reflected as learning factors. To explain more about learning factors, Kevin (2006) argues that these actually "*represent the quality of the learning itself: whether the learning is intrinsically effective and sufficiently easy to use".* The author goes on to say that *"effective and rewarding learning feels like a downhill slope to a learner as they race towards their learning goal. However, dull learning that is hard to use, and poorly supported, feels like an uphill struggle and the individual may give up before completing it*".

Major challenges met and proposed solutions

Among the highlighted challenges, the language of instruction (English) and the high speed of some the lecturers as they teach comes first (76%). One of them said: "*after classes, I had to join my classmates at their homes or convened venues so that they could explain me more about the content. Discussions and explanations were provided in Kinyarwanda; our mother tongue. Well, it was hard to understand, translate and memorize some concepts but we were compelled to*". This translates the reality from the quote reported by Biggs (1990) from a typical view expressed in a South China Morning Post (SCMP) editorial dated 12/9/1987 saying that "the *majority*

of schools use English as the medium of instruction although most students are not sufficiently proficient in the language they are trying to learn. They are compelled by this weakness to spend much of their time memorising the English words to fulfill their study objectives to the extent they fail to grasp neither the English nor the Chinese language well."

Additionally, interviewees (88%) underlined the challenge related to meeting the deadlines (submission of assignments and payments of due operational fees), the authentication of their degree certificates and wrong perception of some people in the society about such a kind of education that they underestimate in terms of quality of the graduates. They have also mentioned that they were challenged by the content reflecting the Indian realities (not much contextualized), limited time to ask questions during live classes (many students and countries being taught by one lecturer at a time) and distance that would be a limit to the establishment of further relationship. One of the interviewee said: "*well I have learnt, passed and graduated. But I wish we have had enough time to debate lively with the lecturer to widen our knowledge and experiences".*

Particularly, the graduates in IT (29%) courses expressed the concerns that they did not get any chance to practice as they learned. One of them contended: "*during live classes, the lecturer would theoretically demonstrate a number of technical items related to IT on the white board without chance for learners at distance to practice and manipulate. Before the end of the class, few of us could ask question or comment on what was taught. We had to go to practice what was learnt on our own in local IT venues and companies. In actual facts, it was not easy, being coached by someone who is neither your teacher nor your mentor".*

With respect to the above discussed challenges, interviewees proposed a number of suggestions. These include the enforcement of the teaching/learning of English in Rwandan schools and use of this language outside the schools (94%), availing staff that can play the role of mentors or guides (29%), sensitizing the general public about the credibility of the e-learning mode as some people still have doubt about its quality (47%). They also suggested that in order to solve the issue of authentication of the Indian degrees and certificates, the Rwanda Ministry of External Affairs and the Ministry of Education have to own this problem and sort it out with their counterparts at Indian side (58%).

As for the issue of contextualization of the content and more interactions during live classes, interviewees recommended that lecturers be well informed that Africa has quite different realities in comparison to India (35%). Hence, more interactions during classes are important so that students reflect on their context, provide and discuss their experiences with lecturers and peer e-learners in other countries so that learning becomes more meaningful and enriched. This is in line with Starr-Glass (2012), who recommends that "*effective learning environments prompt and stimulate significant dialogue about content. They should also create the opportunity for broader social interaction*".

About the issue of lack of practice in IT, interviewees (29%) recommended that there should be virtual laboratories and CDs on which e-learners should practice. In addition, the local learning centres should have partnership with IT companies, organizations and people that coach regularly the candidates under training to

equip them with practical skills by the time they graduate. Lastly but importantly, one of the interviewees suggested that there should be less costly and sponsored opportunities during which e-learners, lecturers and the university administration meet in India at least for graduation occasions to allow the graduates to physically interact with the physical environment of their respective from which they graduate.

Conclusion

This study investigated into the experiences acquired and challenges met by the first batch of e-learners under PanAfrican Tele-Education programmes in Rwanda. The overall findings have revealed that individual learners have played the prime role and responsibility in their learning process. The reality is that teamwork, collaboration and learner support from both the learning centre and university has prevented dropouts and failure.

The highlighted issues of practice, quality of instruction, funds, attitudes and concerns of students with regards to Tele-Education were not much quite new in the area of e-learning as they were documented in different studies taking the example of the one conducted by Valentine (2002). This is a clear demonstration that they are obvious in any distance education. What is important is the awareness of distance education providers, facilitators and learners so that they can work daily and conjointly on how to effectively handle them.

All things put together, the researcher is pleased to underline the satisfaction that the first batch of e-learners have had at the end of their programme. All interviewees (100%) have openly disclosed that they would like to undertake more e-learning courses in the future or even recommend other people to enroll for e-learning courses; which is a better foundation to the establishment and widening of e-learning opportunities in Rwandan Higher Education in addition to the usual on-campus conventional mode. Besides, e-learning is less expensive, more flexible and best fits for modern lifestyle than traditional system of education.

As this study was unfolding, some questions were left unanswered. Therefore, the researcher recommends that further researches be conducted to determine entrance behaviors and community's attitudes towards Tele-Education (e-learning) programmes. Secondly, a study could be carried out to establish the comparison in performance between enrolled students in Rwanda Tele-Education learning centre and other African learning centers. Thirdly, a study to assess the work performance of Tele-Education graduates could be conducted. Last but not least, a study could be undertaken to devise strategies that ensure effective learner support under Tele-Education programs.

References

Beetham, H. (2002). *Understanding e-Learning. Skills for e-learning*, Ulster, 29 July 2002. Retrieved from http://www2.plymouth.ac.uk/ed/ELT%20documents/materials/e-learning%20HB.pdf

Biggs, J.B. (1990). Effects of language medium of instruction on approaches to learning. *Educational Research Journal*, Vol.5, pp. 18-28.

Gallaher, J., Kanfer, A., La Fleur, J., Waight, C., Wang, C. & Wentling, T.L., (2000). *E-learning - A Review of Literature*, NCSA, University of Illinois At Urbana-Champaign, Retrieved from http://citeseerx.ist.psu.edu

Jackson, L., Ervin, K., Gardner, P., & Schmitt, N. (2001). The racial digital divide: Motivational, affective, and cognitive correlates of Internet use. *Journal of Applied Social Psychology, 31*(10), 2019-2046.

Kareal, F., & Klema, J. (2006). *Adaptivity in e-learning*. IV International Conference on Multimedia and Information and Communication Technologies in Education. Retrieved from http://www.formatex.org/micte2006/Downloadable-files/oral/Adaptivity%20in%20e-learning.pdf

Kevin, L. (2006). *How to Implement Successful E-learning*, Retrieved from http://www.mytrainingexpert.com/static/docs/how_to_implement_successful_elearning.pdf

Naidu, S. (2006).*E-learning: A Guidebook of Principles, Procedures and Practices,* 2nd Edition, e Commonwealth of Learning, Retrieved from http://dspace.col.org/bitstream/123456789/138/1/e-learning_guidebook.pdf.

Nwana, O.C. (1981). *Introduction to education research for student teachers*. Ibadan. Heinemann Educational Books

Quinn, M. P. & Cochran, M. (2002). *A Guide to Using Qualitative Research Methodology*, Retrieved from http://fieldresearch.msf.org/msf/bitstream/10144/84230/1/Qualitative%20research%20methodology .pdf

Romiszowski, A. (2004). How is the e-learning baby? Factors leading to success or failure of an educational technology innovation, *Educational Technology*, 44 (1), January-February, 5-27

Starr-Glass, D. (2012). *Learner Perceptions of Distance in an Online Course: Revisiting Moore's Theory of Transactional Distance*, UMUC Europe, Retrieved from http://www.umuc.edu/ctl/upload/Starr-Glass_paper.pdfUpadhyay R. K. (2009). *Introduction to Pan-African E-Network Project*, a presentation in the Workshop on Pan-African e-Network held on 12 August 2009, New Delhi

Urdan, T. A., & Weggen, C. C. (2000). *Corporate e-Learning: Exploring a new frontier*. WR Hambrecht + Co.

Valentine, D. (2002). Distance Learning: Promises, Problems, and Possibilities, *Online Journal of Distance Learning Administration*, Volume V, NumberIII, Fall 2002, Retrieved from http://www.westga.edu/~distance/ojdla/fall53/valentine53.html