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FACTORS AFFECTING TO E-LEARNING IN CONTINUING EDUCATION IN AFRICA: A REVIEW OF LITERATURE

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ABSTRACT

This paper identifies the main factors affecting the implementation of e-learning in continuing education and on the lifelong learning general economy in Africa. The systematic in-depth literature review indicated e-learning adoption factors that could have impacts. This emerging framework is already offering a framework to assess the uneven and difficult implementation of e-learning in initial and continuing educational institutions in Africa, and this from both the perspective of learners and of instructors.

INTRODUCTION

In the 21st century the rapid development of e-learning has put more emphasis on lifelong learning, has created new education opportunities and shown new potential to enhance the teaching and learning experience. It improves the access of educational resources and programs, expands learning opportunities through distance education and reduces the cost in the long-term (Lwoga, 2014). E-learning has a potential to enable Africa to achieve Education for All. As Africa faces shortage of trained instructors, trainees, skilled workers, etc., it makes it possible for educational institutions to enlarge the number of learners' having access to education (Gunga and Ricketts, 2007) and lifelong learning. E-learning offers new teaching and learning opportunities in Sub-Saharan Africa training and educational institutions and beyond. Its platforms are available in many of the tertiary institutions in Africa, although the technology adopted is quite different from country to country and from institution to institution (Eke, 2011).

Today, e-learning services provide opportunity for any person to learn anywhere, anytime. Its flexibility enables a significant shift in the engagement of educational institutions in lifelong learning towards non-traditional learners (Vassiliou & McAleese, 2014). In addition, AlShabrawy (2015) indicated such flexibility makes it easier for institutions across the world to enroll a lot of learners in order to meet their needs (Chitiba, 2011). E-learning provides a radical new approach to the educational process for young and adult learners who are unable to attend on-campus and face-to-face traditional learning. In the perspective of lifelong learning, use of e-learning technologies can intensify learners motivation, provide better information accessibility, promote creative secondary communication and thus stimulate learners thinking (Khan et al. cited in Wanyaga et al., 2015). E-learning is a form of distance learning that has a true potential to help attaining the objective of Education for All. Though, teachers and learners are far away from each other, they can be in contact with each other through e-learning (Cuadrado, 2010). This e-learning can also contribute to problem-based learning and thus inspire a larger number of learners' and lead to better learning outcome (Biggs, 2012 as cited in Vassiliou and McAleese, 2014). The E-learning system is beneficial for trainers and learners located across the world and learners can access information with having restrictions of time, location, interactivity, and the flexibility in terms of fascinating an increasing number of learners (Nawaz et al. 2014). E-learning is increasingly prominent in higher education. Many institutions are increasing such provision and more learners are signing up (OECD, 2005). According to Zemsky and Massy (2004), Tanzania and Uganda still need to adopt and apply e-learning more wide in the educational institutions. In South Africa, there is a tremendous growth in e-learning in higher education institutions (Ravjee, 2007). Jakovljevic (2009) showed how effective e-learning in South African institutions is currently increasing predominantly in terms of online text, email communication and posted course assignments, and chat which give learners greater opportunity to interact with each other.

In theAccording to Frimpon (2012), video conferencing deployments, unavailability of bandwidth, and the source of insecurity are obstacles to e-learning education in general in Africa. Ncube et al. (2014) stated how lecturers of information science department appreciate the value of e-learning, but apprehend the lack of clear understanding of the e-learning process and its inferences for institutions. The University of South Africa (UNISA) completely relies on the postal service for learners' tutorial matter, assignments between the learners and university. However, the main challenge occurs when disruption of the postal service interrupts delivrance

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of materials which cause to make reschedule the submission dates to accommodate disruptions. According to Zemsky and Massy (2004), Tanzania and Uganda are attempting to adopt and apply e-learning more wide in the educational institutions.

Marshall and Ruohonen (1999) indicated e-learning in the classroom still a big challenge to implement in Africa. Bediang et al. (2013) stated that in Cameroon at the FMBS (Faculty of Medicine and Biomedical Sciences) campus learners, residents, and lecturers are widely using e-learning, but some of the basic rules and practices of e-learning in the health domain are still lacking and not well known. Although Africa has only one percent of the world average of bandwidth per capita (Juma and Moyer, 2008) but most of the African institutions can only afford an average of 1.554 Mbps (megabits per second), which is very low as a matter of fact for even a small university given its users (Singh and Lewa, 2014).

According to Steiner et al. (2005) as cited in Alemneh (2006:7), 2004 African Tertiary Institutions Connectivity Survey (ATICS) collected information from the 83 institutions of 40 African countries and the summary of the study indicated that Internet connectivity by three characteristics namely, too little, too expensive, and poorly managed. Moreover, Africa has approximately 12% of the world's population, but it has only 2% of the global telephone network. As a result, the telephone destiny is less than two lines per 100 people in Africa (Naidoo, 2001 as cited in Gyambrah, 2007). E-learning implementation is lacking behind in Africa, but e-learning potential can help to meet Africa's educational and manpower needs, erratic power supplies, weak information and communication technology (ICT) infrastructure, poor educational funding of a vital chance to improve its stake in the digital economy (Oruame, 2008).

RESEARCH QUESTION

What factors affect the adoption of e-learning in continuing education in Africa?

METHODOLOGY

The objective of this paper is to identify the factors affecting e-learning implementation in African educational institutions by studying variables affecting to the adoption of e-learning in African countries. To that end, a systematic literature review was made based on the following steps, namely, formulation of review question, devising search strategy, application of study selection criteria, study design and quality appraisal (Croucher et al. 2003).

Devising Search Strategy

The search strategy was comprehensive and articles were collected from various databases. Twenty pages were checked for each of the Databases Google and Google Scholar. We used "E-learning success factors in Africa" and "E-learning barriers factors in Africa" as keywords.

Study Selection Criteria

According to Croucher et al. (2003), before studies entered into the systematic review, there were two filters. The first filter is a set of inclusion and exclusion criteria selecting only the literature related to our review, in order to address the review question and use it as a second filter.

Design Of The Studies

Studies included only empirical evidence from the experimental or observational research, including the qualitative research (Croucher et al. 2003). This study also has taken into account both published and unpublished work. In this literature review, was selected literature directly linked with the factors affecting to the e-learning adoption in African educational networks.

Quality Appraisal Criteria

The studies included in the literature review have met all the five necessary steps of the quality appraisal criteria (Croucher et al., 2003) for validity and trustworthiness findings. Were selected only studies those which were considerable, acceptable, reliable, and empirically valid, and, plus studies having a good research question and model or theoretical framework.

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LITERATURE REVIEWS

A transnational study conducted by Gunga and Ricketts (2007) in African universities on the challenged faced in terms of implementation of e-learning revealed that factors are infrastructural barriers and weak information and communication technologies.

In *Ghana*, a study conducted by Frimpon (2012) revealed seventeen factors categorized into four groups' such as learner, instructor, technology, and institution that affect the dramatic reduction of pair's wise comparisons in the meaningfulness of e-learning implementation.

In *South Africa*, questionnaire-based survey conducted by Dagada and Jakovlijevic (2004, 2005) revealed that e-learning barriers are asynchronous communication channels and lack of personalization which decrease the level of interaction between instructors' and learners'. Furthermore, in South Africa, Jakovljevic (2009) conducted a study based on a sample of 40 learners in an institution of higher education in Johannesburg. All the 40 learners were involved in a diploma in Computer Studies discipline and these learners were divided into ten groups. Each group was consisted of four learners. The research revealed that lack of financial resources, technical skills of staff, and the expense of e-learning technologies affect the adoption of e-learning in the continuing education. In their study, Meyer and Warnich (2010) showedthat in South Africa, the adoption of e-learning factors in the continuing education is impaired by poor teacher training, insufficient departmental support, lack of teaching resources, overcrowded classrooms and administrative overload. Another study was conducted by Millham and Thakur (2014) in South Africa with twenty-six learners and was from grade 10. The study revealed how learners are suffering from adopting e-learning and these barriers are Internet outages, laptop problems, and login issues. Furthermore, the study revealed that some of the learners, having never used laptops for the e-learning purposes, took some time for them to adjust with the computer.

In *Tanzania*, Lwoga (2014) used a questionnaire-based survey at the Muhimbili University of Health and Allied Science (MUHAS). The survey questionnaires were sent to 408 undergraduate students and the return rate was 66.7%. Results revealed that quality-related factors such as instructor and system are key predictor of perceived usefulness and user satisfaction for the learners' further usage intention of e-learning. However, the study further revealed that the information quality also significantly affects perceived usefulness for the learners' e-learning management systems.

In *Botswana* and *Mozambique*, a study conducted by Mavengere and Ruohonen (2010) at the University of Botswana and the Catholic University of Mozambique revealed that there are five factors which affect the learning management systems in African universities and these factors are computer literacy, computer infrastructure, collaboration/sharing culture, human resource (IT staff) and leadership support. The study further revealed that these issues have to be addressed before they start using e-learning project in the educational institutions of Africa. In Mozambique, another study was conducted by Rambe and Mawere (2011) and revealed that e-learning barriers are abject poverty, weak and erratic power supply, underdeveloped ICTs architecture and cultural barriers within the educational institutions to adopt e-learning for learners. The e-learning Africa report of 2012 as cited in Kasse and Balunywa (2013) stated that some of the most important constraint factors are limited bandwidth, lack of financial resources, inadequate human resource capacity, and the limited electricity. The report was conducted in selected African countries, including Uganda. The constraining factors were further summarized in figure 1:

Table 1: Adapted from Africa e-learning report, 2012.

E-learning constraint factors	The country most likely to identify this as a constraint for e-learning	The country least likely to identify this as a constraint for e-learning
Bandwidth is limited	Zambia	Kenya
Financial resources are lacking	Zambia	Nigeria
Human resource capacity is inadequate	South Africa	Tanzania
Electricity is limited	Nigeria	South Africa
Appropriate training is lacking	Kenya	Uganda
Appropriate hardware is lacking	Tanzania	Ghana
Lack of trained teachers	South Africa	Nigeria
Appropriate software is lacking	Tanzania	Ghana
Political will is lacking	Nigeria	Uganda

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Corruption and theft of resources	Uganda	Zambia
Lack of good quality educational content	Tanzania	Nigeria
Pressure of poverty	Kenya	Uganda
Sustainability is not prioritized	Kenya	Tanzania
Leadership is lacking	Nigeria	Uganda
Instability and lack of security	South Africa	Zambia
Other factors	N/A	N/A

In *Uganda*, *Kenya*, and *Tanzania*, Namalefe's (2010) study revealed the curriculum and school-related factors with regard to the implementation of e-learning such as the physical access to e-learning facilities and Internet connection, language instruction and the availability of software, and school leadership as agents of change and compulsory or the optional status of the subjects are identified. According to Harrison (2010), Africa suffers a typical infrastructure problems, namely, insufficient computers and funds, proper development of curricula for teaching e-learning skills, and lack of teachers trained in terms of integrating e-learning in their teaching. In Uganda and Tanzania, a study was conducted by Zhu and Mugenyi (2015) at two universities, namely, Moon University in Uganda and Mzumbe University in Tanzania to examine the strengths, weaknesses, opportunities, and threats. The sample size of the Moon University was 20 and from the Mzumbe University was also 20. The results of the study revealed that lack of capacities for institutional policies, teachers' competencies, and internal investment are important weakness and treats for the universities. On the other hand, in Tanzania, Ndume et al. (2008) results revealed the implementation of e-learning challenges are management support, methodology, technology, resource accessibility and availability, culture of education and learning styles, design of tools, intellectual investment and global business. Furthermore, they indicated thate e-learning in Tanzania include disrupted power supply arising from unstable power in the country. Power and the affordable Internet connection have played a crucial role in the digital divide between rural and urban areas; they are considered as a major challenge in terms of developing e-learning in Tanzania and Uganda. In Tanzania a study was conducted by Lwoga (2012) and the study revealed that ICT infrastructure, deployment of learning technologies and web 2.0 in HEIs; and the challenges of applying e-learning and web 2.0 in the public universities in Tanzania. In Uganda, another study was conducted by Tusubira et al. (2014) using a questionnaire-based survey with a sample of 341 students and staff from the selected higher educational institutions such as Makerere University, Makerere University Business School, Kyambogo University, Kampala International University, and the Nkumba University. The study revealed five major factors affecting e-learning, namely, lack of knowledge, lack of resources and staff failure to adapt to new teaching technologies. In Tanzania, a study was conducted by Mosha and Bea (2014) at the Mzumbe University and a total of 50 participants was selected randomly from 5 faculties, 2 institutes, and 3 directories of the university. The study revealed that several e-learning factors include lack of skills on how to search internet resources, lack of consistent technical support, computer viruses which limit access to e-resources, inadequate PCs, lack of training on how to access and use e-resources, and poor internet connectivity.

In *Sub-Saharan Africa* (*Angola*, *Burundi*, *Cape Verde*, *Central African Republic*, *Chad*, *Comoros*, *Djibouti*, *Equatorial Guinea*, *Eritrea*, *Gabon*, *Gambia*, *Guinea-Bissau*, *Liberia*, *Mali*, *Mauritania*, *Sao Tome and Principe*, the *Seychelles*, *Somalia*, *South Sudan*, *Sudan* and *Zimbabwe*), Hennessy and Onguko (2010) indicated physical, cultural, socioeconomic and pedagogical factors limiting the adoption of e-learning: lack of electricity and frequent power outages, poor technology infrastructure, overcrowded computer labs and low bandwidth, high costs of (mainly satellite) Internet connectivity, software licences and equipment maintenance, insufficient and inappropriate software.

In *Sudan*, research results by Alamin and Elgabar (2014) indicated two categories of e-learning factors faced by learners: technical factors or the infrastructure of e-learning and social factors which causes the success and implementation of e-learning.

In *Uganda*, *Kenya*, *Zambia*, and *South Africa*, a study was conducted by Ssekakubo et al. (2011) using a questionnaire-based survey and interview at the five universities, namely, Makerere University (Uganda); University of Nairobi (Kenya); University of Zambia (Zambia); Nelson Mandela Metropolitan University (South Africa), and the University of Cape Town (South Africa). The respondents from five universities were key e-learning personalities in the five universities and their participating universities were selected based on the past and current e-learning activities. The study revealed that e-learning factors are high ICT illiteracy rates

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among learners' community, low comfort levels with the technology; usability issues of the learning management systems; poor marketing strategies; ineffective maintenance strategies, and insufficient user or the technical support. In *Kenya*, Namisiko et al. (2014) conducted a study on the challenges facing the private universities wishing to adopt e-learning. Results indicated that major challenges of e-learning factors are availability of ICT infrastructure, e-learning curriculum, instructor competencies, performance expectancy, perceived usefulness of e-learning by learners, and perceived ease of use of e-learning by learners. In *Uganda*, Kasse and Balunywa (2013) underlined e-learning factors responsible for failure in institutions; these factors were categorized into three groups such as infrastructural challenges (lack of electricity, lack of necessary devices like computers to facilitate continuous access to the e-learning, higher Internet costs and its availability, and lack of space for the establishment of e-learning centers among others), technical competence (lack of pedagogical skills and lack of competence to setup, run and maintain e-learning centers), and finally attitudinal challenges (e-learning for the perceived ease of use, e-learning for the perceived usefulness, and availability of the resources) by the learners and trainers in educational institutions (Abdel-Wahab, 2008). In *Kenya*, Gunga and Ricketts (2007) conducted studies at the African Virtual University (AVU) and revealed that the Internet connectivity in higher institutions is inadequate, expensive and poorly managed. A report from the University of Zululand in *South Africa* (e-learning strategic plan for University of Zululand: 2009) noted five e-learning factors that affect adoption of e-learning: a cohesive vision and services across department and faculties to support e-learning, funding for and investments to support programmatic change, policies and procedures conducive to offering e-learning, student access to e-learning resources and support, and a technology infrastructure to support such e-learning enterprise. In *Kenya*, a study conducted by Wanyaga et al. (2015) using a cross sectional study and the study used qualitative and quantitative method. Data was collected using a questionnaire and interview. The study revealed that high cost of computer hardware, software and related accessories are barriers to implement e-learning in schools. In this country, another study was undertaken by Ngamau (2013) at the Jomo Kenyatta University and Agriculture and Technology with the participation of a total of 156 staff from the university main campus. The results of the study revealed that individual computer literacy, organizational (management support, institutional leadership, school and institution wide e-learning strategy, ease of use of the system, and ICT infrastructure) and technology or system factors (ICT infrastructure, perceived usefulness, output quality and job relevance) contributed to poor adoption of e-learning by the two university faculties.

In *Libya*, research results from Rhema and Miliszewska (2010) indicated that Libyan institutes are still facing a lot of challenges to implementing e-learning in the teaching and learning: the cultural and linguistic background of learners and instructors, and their awareness of e-learning and attitude towards e-learning; underdeveloped technological infrastructure and often prohibitive cost of educational technologies; lack of local expertise in the curriculum development for e-learning; and lack of educational management mechanisms to support the e-learning initiatives. Another study also in *Libya* conducted by Kenan (2012) revealed four categories of e-learning barriers namely, implementation barriers, technological barriers, mismanagement barriers, and cultural barriers.

In *Egypt*, Abdelaziz et al. (2011) conducted a study on the effect of using e-learning versus traditional lectures at the faculty of nursing of the Ain Shams University. The study revealed that lack of computer skills affected learners' ability to communicate effectively with instructors. Furthermore, the study revealed that learners' have failed to participate to online activities due to e-learning barriers. Another study in *Egypt* by Lorenzi and Riley (2000) as cited in El Gamal and Abd El Aziz (2011) indicated that lack of knowledge and skills, and the negative attitudes towards the use of e-learning are factors that affect by faculty members who resist to use e-learning materials in the university teaching.

In *Mauritius*, a research conducted by Vencatachellum and Munusami (2006) on the barriers to effective corporate e-learning revealed the following factor as barriers to implementing e-learning, namely, lack of support for training, lack of financial support, difficulty in measuring outcomes, unqualified and unprepared trainers, no freedom and autonomy to learn, IT availability and accessibility, IT training and IT skills, lack of awareness and misconception of e-learning, learner demotivation.

In the *East Africa* countries (*Eritrea*, *Ethiopia*, and *Djibouti*) with the exception of Somalia, a study conducted by Tedla (2012) revealed that inhibiting factors are unrealistic policies of ICT, poor infrastructure, lack of teacher competence, confidence, incentive, perception and beliefs, imposed curriculum, lack of proper network,

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political instability, brain drain, sporadic electricity, poor transportation, lack of public awareness and participation, poor school leadership, technological illiteracy and lack of pedagogical skills.

In *Nigeria*, a study conducted by Olasina (2012) through quantitative method was used at the University of Ilorin revealed that learners' technical skills and e-learning infrastructure are not adequate to meet e-learning requirements. In that country, another study conducted by Lim (cited in Olugbeko and Izu, 2013) underlined three barriers to e-learning education: professional development, time, and support.

RESULTS

This study included a total of 85 articles systematically reviewed on e-learning adoption factors. However the following proposed framework was designed based on compiling 40 articles, as indicated in the flowchart below:

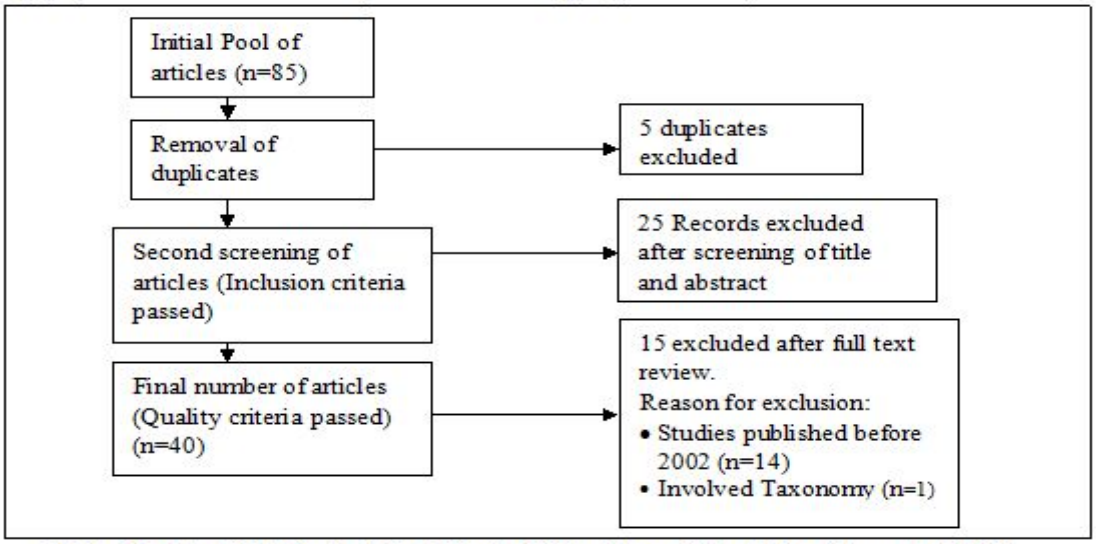

Fig 1: Flowchart of the Studies Included in the Review Process (Adapted from Dagys et al., 2015)

Design Of A Conceptual Framework

Taking into account the many factors identified in the various studies, we propose the following conceptual framework divided into eight categories of factors which could affect e-learning in continuing education in Africa. (Figure 2). These factors are: institutional, technical, resource, training, competency, infrastructural, attitudinal and social integration. They have further been sub-categorized into several sub-factors that affect e-learning in African educational institutions.

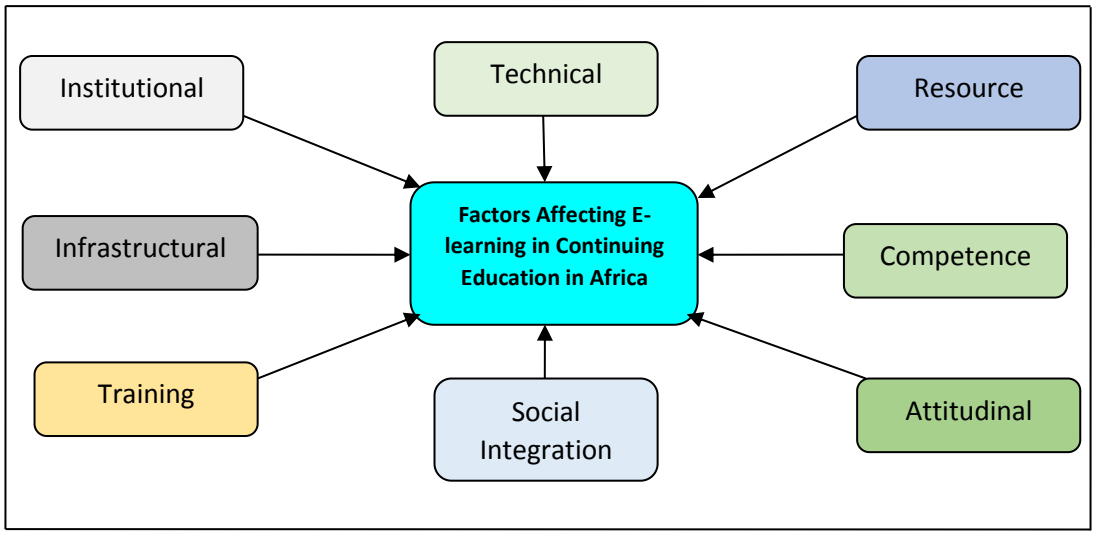

Fig 1: Factors Affecting to Adopt E-learning in Higher Education Africa

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Institutional Factors

Many researchers indicated institutional factors affecting e-learning adoption in Africa and it includes several sub-factors: institutional policies (Zhu and Mugenyi, 2015; Frimpon, 2012), management support (Mavengere and Ruohonen, 2010; Ngamau, 2013), leadership (Ngamau, 2013), school and institution wide e-learning strategy (Ngamau, 2013), ease of use of the system (Ngamau, 2013), ICT infrastructure (Ngamau, 2013; Lwoga, 2012; Venter et al., 2012; Kisanga and Ireson, 2015; Bates, 2009; Namisiko et al., 2014; Rambe and Mawere, 2011; Alamin and Elgabar, 2014).

Technical Factors

Some researchers underlined the technical factors that affect e-learning adoption in educational and training institutions of Africa: weak information and communication technologies (Gunga and Ricketts, 2007), laptop problems and Internet outage (Millham and Thakur, 2014), lack of consistent technical support (Mosha and Bea, 2014), lack of educational management mechanisms to support the e-learning initiatives (Rhema and Miliszewska, 2010).

Resource Factors

Researchers indicated resource factors and sub-factors affecting the adoption of e-learning, namely, lack of financial resources (Jakovljevic, 2009), insufficient funds (Harrison, 2010), expensive and poorly managed (Jakovljevic, 2009; Gunga and Ricketts, 2007), funding for and investments to support programmatic change (e-learning strategy plan for University of Zululand: 2009), lack of financial support (Vencatachellum and Munusami, 2006), higher Internet cost (Kasse and Balunywa, 2013), availability of the resources (Kasse and Balunywa, 2013).

Training Factors

Many researchers in Africa underlined training factors such as poor teacher training (Meyer and Warnich, 2010), lack of training on how to access and use e-resources (Mosha and Bea, 2014), lack of support for training (Vencatachellum and Munusami, 2006) and for IT training (Vencatachellum and Munusami, 2006).

Competence Factors

Results from several research concluded that many competence factors affect e-learning adoption in Africa and these factors, namely, are technical skills of staff (Jakovljevic, 2009), computer literacy (Mavengere and Ruohonen, 2010), proper development of curricula for teaching e-learning skills (Harrison, 2010), lack of knowledge (El Gamal and Abd El Aziz, 2011), lack of skills on how to search Internet resources (Mosha and Bea, 2014), high ICT illiteracy rates among learners' community (Ssekakubo et al., 2011), lack of pedagogical skills (Kasse and Balunywa, 2013), lack of competence to set up, run and maintain e-learning centers (Kasse and Balunywa, 2013), lack of computer skills affected learners' ability to communicate effectively with instructors (Abdelaziz et al., 2011; Vencatachellum and Munusami, 2006; Abdelaziz et al., 2011), lack of knowledge and skills (El Gamal and Abd El Aziz, 2011), lack of teachers competence (Olson et al., 2011; Namisiko et al., 2014).

Institutional Factors

Several researchers underlined infrastructural factors affecting e-learning adoption in Africa such as computer infrastructure (Mavengere and Ruohonen, 2010; e-learning Africa report of 2012 as cited in Kasse and Balunywa, 2013), limited bandwidth, insufficient computer, ICT infrastructure, lack of necessary devices like computers to facilitate continuous access to e-learning, lack of space for the establishment of e-learning centers (e-learning Africa report of 2012 as cited in Kasse and Balunywa, 2013), lack of electricity (Hennessy and Onguko, 2010; e-learning Africa report of 2012 as cited in Kasse and Balunywa, 2013), Internet availability (Kasse and Balunywa, 2013), lack of space for the establishment of e-learning centers among others) (Kasse and Balunywa, 2013), IT availability and accessibility (Vencatachellum and Munusami, 2006).

Attitudinal Factors

Attitudinal factors have also been observed Africa; they include attitude towards learning (Rhema and Miliszewska, 2010), negative attitudes towards the use of e-learning (Abdelaziz et al., 2011), the perceived ease of use (Kasse and Balunywa, 2013) and perceived usefulness (Kasse and Balunywa, 2013).

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Social Integration Factors

The following social integration factors affecting e-learning have been documented: cultural and linguistic background of learners and instructors (Rhema and Miliszewska, 2010; Rambe and Mawere, 2011; Hennessy and Onguko, 2010), culture of education and learning style (Ndume et al., 2008).

DISCUSSION

The main objective of this study was to identify the factors affecting e-learning implementation in education and lifelong learning in Africa. This methodology was based on a systematic review process (the formulation of review question, devising search strategy, application of study selection criteria, study design and quality appraisal). A total of 85 articles were retrieved from the databases and finally 40 articles passed the quality appraisal criteria. All the major factors affecting implementation of e-learning in Africa were considered to design the framework in line with the Technology Acceptance Model (Davis, 1989) and the Theory of Planned Behavior (Ajzen, 1991) to adopt a technology.

Our results led into eight groups of factors. According to their definition and the variables considered, these factors given below are interrelated:

- *Institutional* factors have a relationship with the *infrastructural* factors and vice-versa. These two dimensions affect almost equally e-learning adoption in Africa.
- *Technical* factors are related to *competency* factors and *training* factors. All the three dimensions are affecting e-learning adoption in Africa. However, among the three dimensions, the *competency* factors is he most critical one with regard to the adoption of e-learning followed by technical and training factors.
- *Resource* factors are connected to *institutional* factors and *infrastructural* factors. All three dimensions are almost equally playing crucial role on the implementation of e-learning in Africa.
- *Training* factors have a relationship with the *competency* factors and vice-versa, but the competency factors could be more prevalent as compared to the training factors on the adoption of e-learning in Africa.
- *Attitudinal* factors affect the adoption of e-learning in Africa in relation with *training* and even more with *competency* factors.
- *Social* integration factors influence the adoption of e-learning independently of other dimensions.

Since then the following proposed conceptual framework (Figure 3) could more represent the link between the factors and show how they could have an impact on an African e-leaning institution or system.

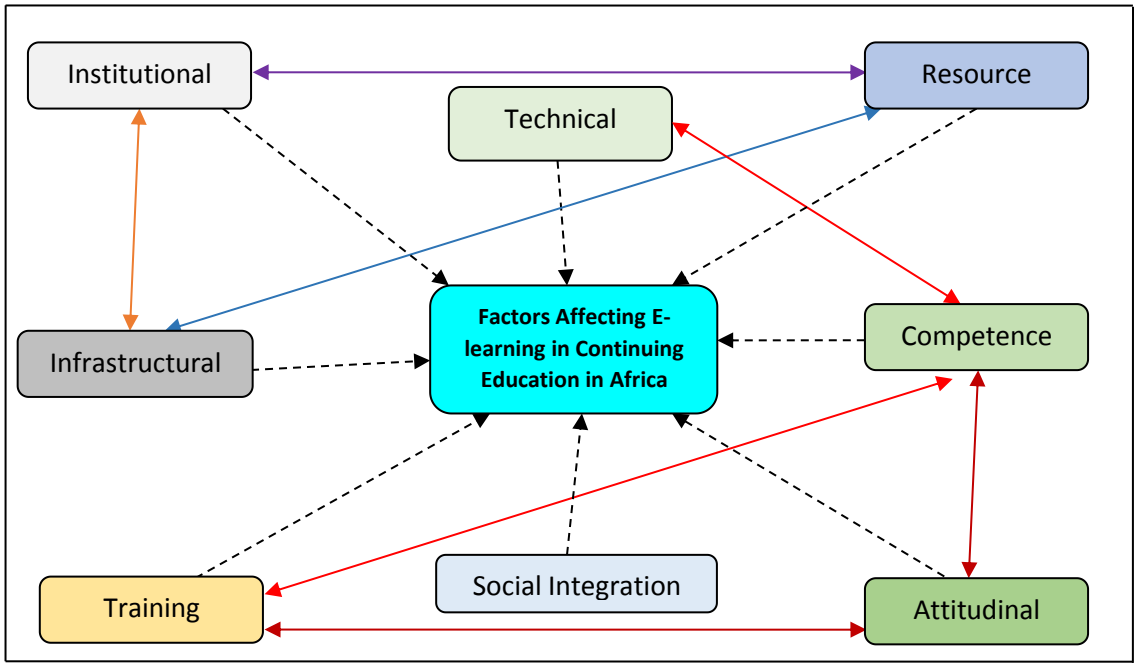

Fig 2: A Proposed Conceptual Framework on the Factors Affecting to Adopt E-learning and its Relationships in Institutions in Africa

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These eight variables can be categorized into three groups: close context, medium context, and the larger context. Davis (1989), following the Technology Acceptance Model, puts then forwards the following variables: perceived usefulness, perceived ease of use, actual use, and the user acceptance.

Regardless of which theory is followed, the eight dimensions are external variables which can influence the perceived usefulness and perceived ease of use of e-learning in Africa and more generally its implementation. However, there is a need for the future research in order to validate further which factors affect the implementation of e-learning in the educational institutions and how they interact as well as to develop a framework based on those e-learning adoption factors.

CONCLUSION AND RECOMMENDATION

The results and the analysis of the literature reviews indicated e-learning adoption factors that could have impacts on African lifelong learning general economy. This emerging framework is already relevant to assess the uneven and difficult implementation of e-learning in initial and continuing educational institutions in Africa, and this from both the perspective of learners and of instructors. This study is already showing how institutional, infrastructural, competency and resource factors are playing a crucial role in Africa since many researchers have identified these as prime factors.

There is a growing request to adopt e-learning in Africa the meet the rising demand for both initial and continuing education. The integration of e-learning has become crucial in the development and accessibility of education in the perspective of lifelong and life large learning.

If in Africa e-learning education is an emerging trend in both formal and non-formal education, further research and innovation experiences are required to diffuse and implement this new way of learning, to discover its multiple modalities, better understand the factors and environments facilitating or hindering its expansion and to explore both infrastructures and practices appropriate to the African context.

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