Comparative Study of Challenges Affecting Adoption of E-Learning for Capacity Building in Public Service Sectors of Kenya and South Africa

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Abstract Over the past decade there has been a rapid increase of new technological advances and specifically use of internet to access information. Economic growth all over the world has continued to be dependent on information and communication technologies (ICT's) and the abilities for countries to collect, process and use the digital information in teaching, learning, research and development. The e-learning revolution in developed countries has proven the use of technology can enhance growth and boost economic development. The purpose of the study was to compare challenges affecting adoption of e-learning for capacity building in public service sectors of Kenya and South Africa. Cluster sampling methodology was used and data analysed using SPSS. The study population represented participants who underwent through a capacity building course African leadership in ICT (ALICT) course offered by GESCI. This is a capacity building e-learning course targeted at mid senior level managers from the public service sectors. The sampled respondents represented Ministries of Education, Information Technology, Planning, Public service training institutions from the two countries. The study findings identified challenges that hinder the adoption of e-learning in the public service and cuts across Kenya and South Africa. These include infrastructure problem, lack of funds, and lack of policies favouring the use of e-learning, provision of reliable e-learning portals to the government employees.

Keywords Capacity Building, E-Learning, Public Sector

1. Introduction

Technology has become the major revolution in almost every aspect of human's life and this has had a huge significant impact on education. The expansion of ICT is driving significant changes in many aspects of human endeavour throughout the world. At both micro and national

levels, ICT has increased the effectiveness and reach of development interventions, enhanced good governance and lowered the cost of delivering basic social services (Yee et al., 2009). In other spheres of social and economic development, ICT has improved the quality of education and training. It is for these reasons that Government has been quick to seize on the importance and practical benefits of ICT as a key for teaching and learning in the twenty-first century. The notion of e-learning, commonly understood as learning facilitated online through network technologies, this has emerged across Kenya and South African institutions since the 1990s (Garrison & Anderson, 2003). In other national contexts, e-learning practices appear together with an entirely new vocabulary, institutional policies and structures, and substantial institutional budgets (Ravjee, 2007).

E-learning appears as one of many ICT-enhanced practices in public sector from the provision of online journals, and networked libraries, to the development of creative software solutions for information management tasks in teaching, research and all sorts of institutional administrative systems for online registration, finance, human resources, student performance data, course evaluations and so on. The new practices have provoked a range of issues around online pedagogies, patterns of access and of exclusion, increasing ICT costs in the context of unequal resources and competing institutional priorities, and the relation of e-learning practices to other institutional interventions seeking to transform the colonial fabric and cultures of Kenya and South African higher education institutions. It is therefore useful to view ICTs as one thread in a complex net of transformation, including historical redress, curriculum transformation, diversity, equity and so on (Czerniewicz, Ravjee & Mlitwa, 2006). Despite the tremendous improvement of e-learning in Kenya and South Africa, there are some common challenges experienced by most organization in the two countries. Research findings have shown that workplaces have not been able to provide structural support and

guidance for e-learning (Smith, 2003). Perhaps developing adequate and functional support systems for learning is one of the biggest challenges facing e-learning design. These support systems can be divided into two complementary forms: first is the pedagogical structuring of the e-learning environment and second is the online support throughout the learning process. The best results of e-learning have been gained by integrated solutions, that is, by combined face-to-face learning and e-learning (Juma, 2003).

The general objective of the study was to compare challenges affecting the adoption of e-learning for capacity building in public service sectors of Kenya and South Africa. The specific objectives were:

- i. To establish the challenges in the adoption of e-learning for capacity building among the employees in the public sectors of Kenya and South Africa, respectively.
- ii. To establish the level of acceptance of e-learning for capacity building among the employees in the public sectors of Kenya and South Africa, respectively.
- iii. To compare the effect of gender, age, education and experience in the adoption of e-learning for capacity building among the employees in the public sectors of Kenya and South Africa, respectively.

The study was guided by the following research questions.

- i. What challenges do public servants engaged in the adoption of e-learning among the employees in the public sectors of Kenya and South Africa, respectively face?
- ii. What are the levels of acceptance of e-learning in capacity building among the employees in the public sectors of Kenya and South Africa, respectively?
- iii. What are the effects of gender, age, education, and experience on the adoption of e-learning for building capacity among the employees in the public sectors of Kenya and South Africa, respectively?

2. Significance of the Study

The findings from this study provide insight into the challenges facing the adoption of e-learning in the public service sectors of Kenya and South Africa. The study provided useful information that would assist in overcoming the perceived e-learning challenges. The findings will provide new perspective on how to handle e-learning challenges in Africa and ensures e-learning is adopted to bridge the digital divide in African continent, this would also add to the field of knowledge.

3. Review of Past e-Learning Studies

Existing empirical evidence demonstrates that the use of ICTs in the instruction processes is spreading faster than any other form of curriculum in the world. Lytras & Pouloudi (2001) in their study titled e-learning just a waste of time, alluded to the fact that many people drop out of e-learning

courses when they face the slightest challenges since it justifies their opinion. E-learning to them offers low learner satisfaction and ambiguous performance thus the reason for high dropout rates. They alluded that the vast majority of e-learning applications fail to establish a unique learning experience suitable for the learners' preferences. The static approach to learning content limits the willingness of many people to use ICT's in order to learn, especially in academic environments the realization of e-learning usually is limited to the deployment of a well-known e-learning platform. Studies by LaRocque & Latham (2003), argues that adopting e-learning in Africa will increase education access and quality as well as lower education cost. However they acknowledge the challenges in introducing e-learning technologies in primary, secondary and higher education in Africa. The researchers recognize the fact that Africa joined the bandwagon of the ICT revolution but still faces the challenges of institutionalizing the development of ICT. They suggest e-learning challenges can be overcome by embracing the potential on public-private partnership activities since there is a considerable scope of expanding the use of public-private partnership in e-learning in Africa. In a similar e-learning study by Arabasz & Baker (2003), they indicate that to use e-learning effectively institutions must adopt pedagogy, enhance the technical proficiency of users, and develop a reliable and robust technical infrastructure. Studies on e-learning revealed that most learners have favourable opinion of the course or online system because it helps learners with necessary computer skills along while providing fun, entertaining and flexible environment to learn as opposed to the traditional mode of learning (Yee et al., 2009). In a similar study carried out by Takalani (2008), while studying the challenges facing the adoption of e-learning in South Africa, reiterates that getting the right solutions for the challenges can promote use of e-learning and thus decreasing poverty levels and unemployment.

Dobbs (2000) maintains that much of the "off the shelf material available is poor and lacking in creativity", whilst Warner (1999) emphasizes the importance of tailor-made materials and online help, but acknowledges their cost. This is a significant point that needs to be addressed in the payback debate, and the balance of quality versus the true cost of materials and their support is one that would benefit from further research. It is, however, an area of great complexity as the range of options and capabilities available does not lend itself easily to definition, and this complexity is only likely to increase as technology advances (Barron, 1999). McLennon (2000) provides a clear exposition of the technological complexity of e-learning and the areas in which problems can occur.

With regard to the learning experience, Dringus (2000) warns that e-learners may be unable to sustain their momentum unless they have the skills for self-directed learning and technology management, unless they are self-motivated, and unless they are prepared for isolation. Indeed, Horwath (1999) recorded anxiety in novice users when the technology failed to respond within 15 seconds.

This theme is addressed by Newmann and Smith (1999), who use Lave and Wenger's (1991) concept, "communities of practice", to note the significance of a supportive and interactive context of learning, highlighting the danger of the learners' needs being ignored in the enthusiasm for technology. This point surfaces again in respect to evaluation, and much of the evaluation of e-learning that does take place concentrates on uptake, rather than the comparative effectiveness of online and traditional courses (Horwath, 1999). The exceptions to this include, Furnell et al. (1999) and Leins and Orton (2000), who reiterate all of the above concerns and take a stakeholder perspective, and Athanasou (1999) who urges the need for evaluation, and who offers a six-step framework, which includes a range of qualitative issues as well as cost.

Hartley (2000) concentrates on the impact of e-learning on the role and skills of the trainer. Moreover, a recent study by Masie (2001) further reinforces this message, highlighting that "learner acceptance" is not guaranteed and will require firms to address issues of marketing to encourage participation, support to aid retention, incentives to provide validation of the training completed, and technology to support collaboration and provide blended solutions.

4. Research Design

To achieve the objectives and to answer the research questions a comparative research design was employed. Comparative study research provides a fundamental tool of analysis; it sharpens the power of description and plays a central role in concept-formulation by bringing into focus suggestive similarities. Collier (1993) argues that, comparative method is a fundamental tool for analysis; it sharpens the power of description and plays a central role in the concept formulation. Given the inevitable scarcity of time, financial resources comparative study gives systematic analysis of cases under study.

Cluster sampling was used so as to provide every public sector employee who have undergone through the course equal chance of inclusion in the sample. There were two clusters one drawn from Kenya and the other from South Africa. The total population was 267 individuals with 147 from Kenya and 120 from South Africa. The population selection focused on participants who have undergone through the ALICT capacity building programme. According to Yomane Taro's study (as cited in Israel, 2012), the sample size was calculated using the following formula;

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = sample size

N = population size

e = is the level of precision ± 10 (sampling error of 90 % confidence level)

Kenya:

$$n = \frac{147}{1 + 147(0.10)^2} = 59.514717 = 60 \text{ responses}$$

South Africa:

$$n = \frac{120}{1 + 120(0.10)^2} = 54.545454 = 55 \text{ responses}$$

As a result of the sampling formula a total sample size of 115 was used for the study as a representative of the population. A sample of 60 being from Kenya and 55 being from South Africa respectively.

5. Results and Discussion

A total of 107 respondents filled the questionnaire, 95.00 % from Kenya while South Africa had 90.90%. From the total respondents Kenya had a higher male population tagged at 64.91% of the respondents as compared to South Africa which had 52.00% of the respondents as males. Chi square was use to check whether there is any relationship between adoption of e-learning and gender.

Table 1. Relationship between Gender and E-Learning Adoption Chi Square Tests

Country		Value	df	Asymp. Sig. (2-sided)
Kenya	Pearson Chi-Square	0.173	1	0.677
	N of Valid Cases	56		
South Africa	Pearson Chi-Square	6.027	1	0.014
	N of Valid Cases	48		

This shows that there exists a relationship between gender and the adoption of e-learning. In South Africa there exists a relationship between gender and the adoption of e-learning, significance at 0.014 expected significance at 0.1 for 2 sided significance. This shows 50 % Male in South Africa agree compared to 33.3 % female. In Kenya there is a relationship with 0.677 significance, though this shows a weak relationship.

Table 2. Relationship between age and e-learning adoption Chi Square Tests

Country		Value	df	Asymp. Sig. (2-sided)
Kenya	Pearson Chi-Square	6.675a	3	0.083
	N of Valid Cases	57		
South Africa	Pearson Chi-Square	7.954b	3	0.047
	N of Valid Cases	48		

This shows that in South Africa there is a strong relationship between Age and the adoption of e-learning (significance at $0.005 < 0.1$), indicating a very strong relationship. This implies that the Age of the people involved in capacity building efforts contributes immensely towards e-learning adoption. With the leading age group being those between 40-50 years and this makes 37.5 % of the total.

Table 3. Relationship between age and e-learning adoption

	Country	Value	df	Asymp. Sig. (2-sided)
Kenya	Pearson Chi-Square	0.173	1	0.677
	N of Valid Cases	56		
South Africa	Pearson Chi-Square	6.027	1	0.014
	N of Valid Cases	48		

In South Africa there is a strong relationship between Age and the adoption of e-learning (significance at $0.005 < 0.1$), indicating a very strong relationship. This implies that the Age of the people involved in capacity building efforts contributes immensely towards e-learning adoption. With the leading age group being those between 40-50 years and this makes 37.5 % of the total.

Table 4. Relationship between Years of professional experience and adoption of e-learning Chi Square tests

	Country	Value	df	Asymp. Sig. (2-sided)
Kenya	Pearson Chi-Square	11.173	4	0.025
	Number of Valid Cases	56		
South Africa	Pearson Chi-Square	2.457	4	0.652
	Number of Valid Cases	48		

In Kenya years of professional experience directly affect e-Learning Adoption (significance at $0.025 < 0.1$), while in South Africa it is also notable that years of professional experience affect e-learning adoption. (Significance at $0.0652 < 0.1$). The study shows that Age, Education and years of experience have a direct effect on the adoption of e-learning for capacity building in the public service sectors of Kenya and South Africa.

6. Summary of Key Findings

The study was guided by three main objectives and research questions below:

Research Question 1: What challenges do public servants engaged in the adoption of e-learning among the employees in the public sectors of Kenya and South Africa, respectively face?

From the study findings below are some of the major challenges facing the adoption of e-learning for capacity building in the public service sectors of Kenya and South Africa.

(a) Lack of Administrative or Management and Technical Support.

The findings show that majority agree that Lack of administrative or management and technical support is a challenge in the use of e-learning for capacity building. Results show that 35.42 % of South Africa agrees to the challenge as compared to 42.11 % from Kenya. ICT Leadership in the public sector requires new mindsets new skills and capacities to provide leadership politically, economically and socially in environments that are rapidly changing. There is need for sustained high level ICT championship at national level to provide oversight, inspiration and political goodwill.

(b) Technological Challenges.

From the findings respondents still face technological challenges with South Africa rating it highly 45.83 % agreed strongly as compared to 20.69 % from Kenya. Electricity reliability still remains a major problem in Kenya and South Africa where respondents indicated electricity is unreliable majority of this was from South Africa which constituted 36.17 % as compared to 24.14 % from Kenya. Despite enormous presence of fiber optic cables crisscrossing the two countries 73.49 % agree that internet is still unreliable. In a similar study carried out by Infodev and PWC, (2010) they cited Infrastructure as the most critical bottleneck in Kenya and South Africa, this includes both IT and non IT infrastructure. Low levels of electrification and frequent power outages are cited as by far the most significant problem for effective use of ICTs in education in rural areas. While internet connectivity is on average in the two countries, efforts are underway to improve the same through the presence of undersea fiber cables. The South Africa 2008 electricity crisis exposed serious weaknesses in electricity infrastructure. Lack of adequate ICT infrastructure has hampered provision of efficient and affordable ICT services in the country.

(c) Expertise

From the respondents we find e-learning expertise as the most predominant factor hampering the adoption of e-learning in the two countries. When asked whether they think lack of systematic approach to ICT implementation, 37.93 % from South Africa agreed compared to 37.50 % from Kenya, similar percentages also strongly agree on the issue. Majority of the respondents indicated lack of ownership in the use of e-learning for training; with South Africa leading with 50.00 % as compared 18.97 % from Kenya. For e-learning to be implemented and be embraced fully, they should have a dedicated qualified team to support e-learning. ICT has been considered in the past as a support function in most of the departments in the public sector, where as it should be placed in a strategic position since it is an enabler.

(d) Curriculum Development

The findings show that there is a problem in curriculum development, when asked if to indicate if curriculum for e-learning is a contributing to the rejection of the tool. Majority of South Africa respondents 43.75 % as compared to 32.76 % from Kenya who view this has a problem. This is mainly how the content is presented in a digital format. Content related issues have been cited as a massive contributor to the technological challenges that online users face. The demand-driven learning model technology is seen as support or a toll to achieve the desired learning outcomes in the cost effective way. The primary purpose of the model is to demand emphasis on three consumer demands: high quality content, delivery and service. Lack of a policy framework on e-learning has hampered its development and utilization therefore. The content developed should ensure there is high percentage of user retention by adding value to the content through bringing in proper instructional design tools. From the study findings 41.67 % of the respondents from South Africa agreed that there is difficulty in engaging learners online compared to 31.03 % from Kenya.

Research Question 2: What are the levels of acceptance of e-learning in capacity building among the employees in the public sectors of Kenya and South Africa, respectively?

(e) Levels of e-Learning Acceptance in Kenya and South Africa

The research findings indicate that majority of the public servants from the two countries understand about e-learning, this is evidenced by the fact that 72.90 % of respondents have undertaken e-learning in the workplace. When asked if they think e-learning supports capacity building an overwhelming 81.03 % of the respondents from South Africa highly regard the adoption of e-learning as the best tool for capacity building compared to 73.47 % from Kenya; this is a positive feedback as this shows that adoption of e-learning can be implemented very easily without resistance from senior public servants in the two countries. Various ICT policies from the respondents institutions regard e-learning as a very special component and thus the policy implementers have to implement the use of e-learning without much option.

(f) Conclusion

From the respondents of the study, it is evident that e-learning for capacity building is not new in the public service sectors of Kenya and South Africa. It is regarded as the best tool for capacity building, because of its cost flexibility and ability to reach many audiences in far flanked areas. Delivery of services in most government offices has been hampered in the past by employees travelling for training in higher institutions of learning or at government training institutions. This can be stopped by embracing e-learning in the public sector in the two countries. The government has to do a lot in improving policies on training,

empowering employees with equipment especially those who work in rural areas, ensuring there is more funding, availability of computers, faster internet and providing electricity in rural areas for the government workers. There is need to provide reliable technical support to employees who enrol on an e-learning course by providing reliable portal and ensure time is provided for those undertaking e-learning courses for skills improvement.

Kenya and South Africa has an opportunity to be pioneers in the use of e-learning in the public service sectors because of her strategic positions in Africa. Major undersea cables criss-cross Kenya and South Africa and this means the issue of infrastructure and internet cost challenges will be a thing of the past. If e-learning is embraced in the two countries well successfully, the rest of the continent will follow suit and this lower the government's budget on training.

(g) Recommendations

From the research findings before government employees are taken through and e-learning course adequate computer skills training have to be offered, this will help the learners in navigating through the e-learning platform without a challenge. The e-learning portal should be very stable and accessible 24 hours throughout the training period, there should also be an assurance of 24 hours technical support to provide technical assistance to online participants.

For Kenya and South Africa public service to fully adopt e-learning as a tool for capacity building the public service sector, the following emerged as the essential requirements which also acts as ways of overcoming challenges that hamper the adoption e-learning.

- i. Provision of more funding to ICT departments for the implementation of e-learning and full implementation of appropriate policies favoring the use of e-learning
- ii. Ensuring stable internet infrastructure at lower costs, reliable electricity in all government offices and especially those who work in rural areas.
- iii. Availability of functional computers in the government offices, sensitization of government employees on the importance of e-learning and provision central portal for government employees which is reliable
- iv. Make e-learning course a requirement for promotion and Use of open source software to protect employees from incurring extra costs in purchasing software.

The researcher recommends that further research can be done with a view of visiting the government offices in the two countries so as to do own analysis of the challenges and status of e-learning adoption. The research aimed at documenting existing e-learning challenges affecting the adoption of e-learning for capacity building in the public sectors of Kenya and South Africa. The same research topic could be repeated with a different approach to compare the challenges in many African countries.

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