A Study Of Elearning Implementation Readiness In Togolese Higher Education Institutes (HEI(S))

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Abstract: Global communications and online technology are dramatically increasing opportunities for institutions and organizations in the world. With the spread of Information Communication and Technology (ICT) infrastructure and cellular telephony in Africa, institutions of higher education, organizations, and communities will increasingly rely on information and communications technologies for efficiency and higher performance in their activities. In this study the modified Center for International Development (CID)'s Readiness for the Networked World survey, published by Harvard University in 2000, as a guide for developing countries [2] was used to assess Togolese Higher Education Intuitions' ICT implementation readiness regarding (a) physical infrastructure (high bandwidth, reliability); (b) integrated current ICT skills and technology capabilities throughout schools and institutions; (c) a commitment to universal access; and (d) security and policies. Each information technology category was scored on whether the surveyed Togo higher educational institutions were at the Implementation and Integration Stage (100%), defined by full access usage, management and understanding of the complexity of IT implications including security and policy; the Development Stage (75%), how far through the implementation has progressed and how much further development may still be required; the Enhancement Stage (50%), the technical skills, technology capabilities and processes of the implementation

Index Terms: Africa, Communication, eLearning, CT Implementation, Internet, Institutes Readiness

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1 INTRODUCTION

In this study the modified Center for International Development (CID)'s Readiness for the Networked World survey, published by Harvard University in 2000, as a guide for developing countries was used to assess Togolese Higher Education Intuitions' ICT implementation readiness [2] regarding

(a) physical infrastructure (high bandwidth, reliability);
(b) integrated current ICT skills and technology capabilities throughout schools and institutions;
(c) a commitment to universal access; and
(d) security and policies. Each information technology category was scored on whether the surveyed Togo higher educational institutions were at the Implementation and Integration Stage (100%), defined by full access usage, management and understanding of the complexity of IT implications including security and policy; the Development Stage (75%), how far through the implementation has progressed and how much further development may still be required; the Enhancement Stage (50%), the technical skills, technology capabilities and processes of the implementation being established; the Access Stage (25%), the capabilities of the ICT tools and the applications of these tools by the institution; and/or the Learning Stage (<25%), the experiential basis for learning, understanding at least the ICT implications in the organization and how to apply the skills acquired.

The majority of the Togolese higher educational institutions were found to be at the Enhancement Stage (the technical skills and the technology capabilities are becoming visible) in 2005. Much progress; however, were accomplished to arrive at the Implementation and Integration Stage (full access usage, management and understanding of the complexity of IT implications including security and policy). Similarly, the number of on line courses provided, student enrollment and student e-mail accounts best-predicted computer availability in Togo Higher Educational Institutions. Recommendations for further progress were outlined here, in particular taking a more organized approach to ICT readiness. Finally, recommendations are outlined for conducting more comprehensive studies of this subject in this and similar parts of the developing world.

2 PURPOSE OF THE STUDY

The purpose of the present study was to test the level of readiness of Togolese HEIs institutions for optimal eLearning implementation. This study was designed to raise Togolese HEIs' awareness before it ventures further into its eLearning implementation. This may help Togolese HEIs to act as pioneers in the fast-changing IT environment, where eLearning is occurring in Africa's tumultuous economic and educational systems. The section below presents the data collected from the survey and its analysis. The analysis described below was conducted using the SPSS software. The descriptive technique was used to analyze the data.

2.1 Method

Data was collected from 17 higher education institutes in Togo with 500 respondents. Descriptive statistics such as frequencies were used to describe the level of readiness in each of the areas of concern from the 20 questions that were asked from the institutions. Chi square analysis was used to test bivariate correlations. The questions were oriented and focused on five (5) main categories of information on each item vs. four (4) from the previous survey : the Implementation and Integration Stage (100%) defines full access usage, management and understanding of the complexity of IT implications including security and policy; the Development Stage (75%) defines how far through the implementation has progressed and how much further development may still be required; the Enhancement Stage (50%) defines primarily the technical skills, technology capabilities and processes of the implementation being established; the Access Stage (25%) defines the capabilities of the ICT tools and the applications of these tools by the institution and the Learning Stage (<25%) defines the experiential basis for learning, understanding, at least the IT implications in the organization and how to apply the skills acquired.

2.2 Results

Out of the 17 institutions, almost half of them (47.1%) do not have a computer available in the institution. Among the institutions that responded in the question regarding the network access at their institution, 40% stated that they are at the implementation and integration stage while 20%, 10%, 10% and 20% of the institutions stated that they are the development, enhancement, access and learning stage respectively. Regarding the Internet dial-up access availability (item #3), about 30% of the institutions were at the Development Stage, 50% were at the Access Stage and 20% are at the learning stage. Regarding the DSL/Cable access availability at their institutions, 40% of them stated that they are the implementation and integration stage while only 10% were at the learning stage. About 33.3% describe the computer literacy at their institutions as the learning stage. In terms of IT expansion with Togolese government involvement, 33.3% of the institutions believed that they are at each of the implementation and integration, access and learning stage. Regarding policy, laws and regulation practices at the institutions, 55.6% stated that they are at the implementation and integration stage while 44.4% stated that they are at the access stage. In terms of the biggest worries regarding IT expansions, 46.7% of the institutions believed that people's educational needs should be taken care of first, another 46.7% believe that people's basic needs should be taken care of first while 6.7% believed that there was no adequate policy and strategy in place. A chi-square test conducted between the level of availability of students' computer at the institution and the stage of internet usage seems to indicate that there is no evidence to reject the null hypothesis of independence between these two items at 5% significance level. However, at 10% significance levels, there is an evidence of association between the two items. * Another chi-square test conducted between the level of availability of students' computer at the institution and the biggest worries regarding IT expansion seems to indicate that there is no evidence to reject the null hypothesis of independence between these two items.

2.3 Conclusion

Across the spectrum of technology use, many of the institutions believed that they are at the implementation and integration stage on most of the items. A clear lack of computer availability is shown in about half of the institutions and people basic and educations needs have been seen as the biggest worries of these institutions for IT expansions. The results of this survey and the survey of 2005 seem to indicate that there has not been a significant expansion of IT use by these institutions compared to seven years ago.

3   SUMMARY, CONCLUSION, AND RECOMMENDATIONS

This summarizes the results and offers implications for the study of Togolese HEI(s) as relates to eLearning. The first section presents and reviews the study's intent and methodology. The results of the research and implications for policymakers are then discussed in the second section. The third section focuses on the limitations of the study and concludes with suggestions for future research in this area.

3.1 Study Overview, Intent, and Methodology

The purpose of the study was to test the readiness of Togolese HEI(s) for optimal eLearning implementation. This study was designed to determine whether assessments can be made and standards set as relates to eLearning implementation; particularly ones that might be used across organizations, in Togolese HEI(s) and elsewhere. The goal was to help guide Togolese HEI(s), and other educational organizations, in the fast-changing eLearning world. The Togolese educational environment is known in Africa for its stability and continuous growth. It is recognized, however, that education in general and ELearning in particular, will not solve all the problems of the Togolese people. Some of the problems identified by the Conference of Rectors and Vice Chancellors and Presidents of African Universities (COREVIP, 1999) meeting in Arusha, Tanzania for the Association of African Universities (AAU) were concerns about:

- electronic contact/interaction/interplay among African universities;
- setting up a working group of experts on ICT in African HEI(s);
- analyzing existing case studies of success stories and lessons learned, and disseminating information using appropriate technology to assist African HEI(s) in taking advantage of best practices; and
- Surveying existing practices and creating a database of ICT uses [1].

One of the AAU's suggestions was also to study the use and application of information and communication technologies (ICTs) in Africa's higher educational institutions. ELearning may be one approach that can help the Togolese people. An approach may be particularly useful, because it may complement traditional learning systems in HEI(s) and be more accessible to the public in more remote areas in Togo and in Africa in general. The present study, then, used a modified public instrument: the Center for International Development's (CID) Readiness for the Networked World Survey, published by Harvard University in 2000 for developing countries to assess the status of Togo higher educational institutions as relates to eLearning. The survey draws upon the 1998 Computer Systems Policy Project (CSPP) guide. This guide is available as a "public policy" and is titled "e-readiness." The CID guide measures 19 categories covering the availability, speed, and quality of network access, use of ICTs in schools, workplace, economy, government, and everyday life, ICT policy (telecommunications and trade), ICT training programs, diversity of organizations, and the relevancy of the content online programs. The CID guide did not offer prescriptions for improved readiness, although it did offer good ideas for e-readiness assessment. In this study the modified CID instrument or Togolese HEIs implementation readiness scale or "i-readiness" was used to measure the infrastructure, access, applications and services of IT systems detailed as follows:

- (a) physical infrastructure (high bandwidth, reliability);
- (b) integrated current ICT skills and technology capabilities throughout schools and institutions;
- (c) independent regulation with a commitment to universal access; and
- (d) security and policy.

(e) government and private sector involvement.

This assessment (the modified CID guide) or implementation readiness (i-readiness) scale produces final ratings, which indicate the point where each institution stands on each of the five categories of information development. Each score estimates the institution's readiness by averaging the scores across each criteria (physical infrastructure, integrated ICT skills and capabilities, regulations and security, policies and government and private sector involvement). The researcher's brother distributed the survey to the institutes that were thought to have Information Communication and Technology (ICT) systems. The total number of responses obtained was 500, composed of administrators from the various schools, teachers, technical support staff, students with or without eLearning experience from the University of Lome, and technical coordinators from each institute. The Togolese HEI(s) I-readiness assessment guide was originally used in a pilot project (68 out 100) for Togolese HEI(s) in 2005. Following this, the survey was used in the full study. The data was first analyzed using descriptive techniques. The results showed

Stages	2005	2013
The Implementation and Integration Stage (100%)	23.07%	40%
The Development Stage (75%)	19.1%	20%
The Enhancement Stage (50%)	25.44%	10%
The Access Stage (25%)	10.8%	10%
The Learning Stage (<25%)	19.1%	20%

Most of the institutions were considered to be "i-ready" because they did exceed the 50% mark set as the standard for being "i-ready" on all categories, as initially set by the researcher. A descriptive analysis helped predict the relationship between the dependent variables (number of computers) and the independent variables (dial up-broadband-computer's literacy and online courses, students' internet usage, security practices and laws regulations). Togolese HEI(s) are at the Implementation and Integration Stage. The descriptive analysis gave the status of each HEI on all 20 questions in the survey. Then a regression analysis was conducted as complementary analysis to verify the fitting information of the model data but the results suggested that there might be a need to reduce the number of explanatory factors in order to get a better model (ordinal regression). Following this, the model adequately fit the data. Questions 5, 6, 7 and 8 helped predict the number of computers available in the institutions. The next section describes specific results of the study and its implications for policymakers.

3.2 A Result of the Research and Implications for Policy Makers

In the final survey, a trend emerged as relates to the questions answered by the respondents. In the final survey, the following points were emphasized. An analysis of the institutions per categories, show that for the physical infrastructure (high bandwidth and reliability for Questions 1-computer availability, Question 2- network access availability, Question 3- Internet dial-up access availability and Question 4- broadband access availability), most of the

institutions were at the Implementation and Integration Stage (ES). Togolese educators, through their annual gathering, should emphasize on the implications of ICT in education and should develop courses to integrate or partners with organizations to invest in schools. In return, the schools should offer free market research for Togolese and regional countries investors in Togolese free trade areas. For the integrated current ICT throughout schools and institutions category (Questions 5- computer literacy, Question 6- online courses provided, Question 7- students enrollment in online classes and Question 8- students' email accounts number), most of the institutions were at the Implementation and Integration Stages (IIS). Togolese educators should develop a communication system based on emails and/ or other means in order to increase the use of the Internet throughout schools. For the regulation category (Question 9- Internet connectedness and Question 10- Internet usage in faculty most of the institutions were in the Implementation and Integration Stage (DS). These may be built on by creating alliances between NOG, and developed countries in order to have funds allocation, control and management of Internet and for the security and Policy category (Question 11- computer security practices, Question 12- privacy best practices, Question 13- network attacks protection against virus/hackers and crackers, and Question 14- policy, laws and regulation practices), most of the institutions were in the Implementation and Integration Stage (LS). Togolese educators should be at the front of font of security awareness and readiness seminars for the education systems body and set rules and regulations on how to use Internet for proper security. Again, Togolese institutions, for the 20 questions, 10% of the institutions were at the Enhancement Stage compared to 40% at Implementation and Integration Stage, 20% at the Development Stage, 20% at the Learning Stage and 10 at the Access Stage and most of the institutions were considered to be "i-ready." Most institutions, then, were at the Implementation and Integration stage. The complementary analysis of the ordinal regression showed that the independent variables seemed to explain the dependent variables "computer availability". The independent variables Question 5 (computer literacy), Question 6 (online courses provided), Question 7 (students' enrollment in online classes) and Question 8 (students' email accounts number) seemed to best predict the dependent variables (number of computers). From the above, Togolese educators should try to emphasize the positive impact of computer literacy and online courses on remote areas students. By developing cyber cafes projects or informational seminars, educational administrators should sell organizations on the vital role of ICT in today's economy. The educational institutions should also create partnerships with organizations to get more computers for schools and in return they should develop market research for the giving organizations in order to further promote the online systems. The first assumption in the first survey in 2005 was that Togolese institutions would be well versed in technology and computer literate, but the results of the final survey in 2013 showed different results. This may be reflected in the response to Question 5 – computer literacy. The 2013 survey however showed different results and confirmed the progress that has been made. The financing of information systems in Togolese

HEI(s) may be nonexistent or fraught with problems. This may be reflected in the small number of computers found in some of the surveyed institutes, and the institutions being only at the Learning Stage (Question 1- number of computer available). Even though most individuals can typically only afford their own technologies (computers and Internet connections), the organizations (schools and institutions) and communities seem to be progressing with ICT integration. It may also be that with no organized government structures addressing these concerns, the country may be incapable of taking advantage of the available knowledge or resources relating to IT. This may be reflected in the responses to item Question 1- number of computer available, item Question 2- network access availability and item Question 3- Internet dial-up access availability). Togolese leaders should consider the recommendation of the Conference of Rectors and Vice Chancellors and Presidents of African Universities (COREVIP, 1999) meeting in Arusha, Tanzania, by creating a body to oversee and plan ICT integration in the various education systems. This national effort may also, however, suffer from a dearth of expertise and funding. The lack of skilled people found in the ICT area in Togo may be undermining HEI(s)' efforts in the eLearning world (this may be reflected in the responses to Question 5-computer literacy). In the same vein, Laroque and Latham (2003) reported the following: The emergence of new technologies and new models of public-private partnerships in education will create many new opportunities for African education [3]. These opportunities will require that government policy makers invest time and effort into developing a new and workable framework for facilitating public-private partnerships in the education sector in general, and the eLearning sector in particular. We trust that this report will lead to further discussion and analysis of how such partnerships can contribute to addressing the education needs of Africa in the next decade. The results here, again, suggest that 40% of the respondents score in the Implementation and Integration stage regarding Question 14 (policy, laws and regulations) suggesting a maturity level of IT policy management at the institutes. This report, then, should inspire Togolese policy makers to reorient their view of emerging technology and its impact on education, and to set up policies to address and anticipate on new issues, in order to utilize these systems in Togo's schools and institutions. The data here seem to support this need. Laroque and Latham's 2003 report on eLearning added that in order to move eLearning forward, multilateral, bilateral, private sectors, nonprofit organizations, and the governments should fund, assist and manage eLearning systems together [3]. Multilateral, bilateral, private sectors, nonprofit organizations, and the governments should also appoint an executive body to oversee the plan and the implementation of eLearning and to encourage the private sector to initiate eLearning as part of a new learning paradigm. The present results suggest where the higher educational systems are at present. The results are a start at making the eLearning educational system more modern and hopefully ensuring that the system is developed more and used by educators and students. Knowing that the overall institutions are in the implementation and integration stage may be recognition that a sustainable and viable system is underway however. The predictive factors could

also be pushed (computer literacy), Question 6 (online courses provided), Question 7 (students' enrollment in online classes) and Question 8 (students' email accounts) in order to build upon this beginning and ultimately influence the number of computers in existence and the number of systems that ultimately may be available. In general, a pattern emerged on the questionnaire and the results of the present study helped to identify the stage that the institutions have reached. On a global level, however, most of the Togolese institutions can be labeled entirely "i-ready" because they have exceeded the 50% mark set in the standard model. This is a clear departure from the 2005 survey where most of the institutes were in the Enhancement Stage Togolese educators should be aware of the progress that is underway and work to improve the status of their institutions. The institutions might also have to secure more reliable and higher bandwidth communication systems (Intranet and Internet); and access more email accounts and be better versed in IT policy, laws and security. Even though most of the institutions might have passed the 50% mark on some of the measures, these marks were limited (like the Learning Stage – Question 1, computer availability) for some of the organizations.

4   LIMITATIONS, SUGGESTIONS ANS CONCLUSIONS

A major limitation of the present study was the small sample size obtained. It is unfortunate that more organizations did not participate. In the future corporations perhaps should also be included in order to provide their perspective on the state of Togo computer readiness. The scale might have to be modified, however, if corporations are included in a study in the future. Greater detail may also have to be gathered, using a different scale format, so that some of the reasons for the Togo status levels can be better determined (the present study only focused on estimates from the participants regarding where they think Togo educational institutions are.) This study should be viewed only as a preliminary effort toward future research. Future studies may also want to examine individual educational institutions, and or, individual administrators, or groups of administrators to better assess why their organizations are at their present levels as relates to their computer systems and eLearning capabilities. The timing of the survey itself could, also, have been better because it was distributed when the country was in the middle of presidential election, the turmoil. The results of the present study cannot be intelligently discussed without thinking about the current state of affairs in Togo also (legal, political, social, economic, etc.). Financing, for instance, has been a chronic problem in third world countries and particularly in Africa. This problem has impeded the integration of African ICT(s) and is clearly a limitation in the present country. Twelve years of European Union (EU) sanctions on Togo have not helped modernize Togo's traditional educational system either and the entire economy has suffered as a result. This is probably related to the fact that 47.1% of those surveyed did not check the item #1 (number of computers). Without economic support, IT expansion and eLearning systems, will not successfully progress. It seems that despite the efforts of non-profit organizations to bring technology to poorer communities

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and educational organizations in Togo, government reluctance to accept what private partners and NGOs are offering due to other priorities has delayed the adoption and integration of technology both in Togo and in the rest of Africa. Togolese educators should raise government awareness by creating eLearning cases that will help ICT initiative in schools and collaborate with non-profit organizations. The administrators of the educational settings should assist their institutes in creating and using assessment approaches effectively; this information can help the leadership in the creation and implementation of eLearning and in creating and using IT policies more effectively. The results of these efforts should also be fed back into the educational system (perhaps at the top government levels), to make better use of the data and to track progress along the way. The institutes' core faculty should also be made more aware of the impact of ICT on HEI(s) and they should be encouraged to assess the effects of the technology on the student bodies in order to better integrate it in their courses. The current study does not claim to be anything more than a preliminary research study. It did reveal, however, that an integrated approach to eLearning implementation seems to be needed. Educators in Togo need to focus more on gaining the resources to implement eLearning concepts and ideas, they need to better design the systems that are implemented, they need to push for implementing eLearning ideas into Togolese Higher Educational organizations, coordinating these efforts better and learn from the information that is already collected. The present study, then, is only a beginning; but it is at least a start in knowing more about the eLearning process in Togo.

5 REFERENCES

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