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System efficiency on mobile learning system user satisfaction at Egerton University, in Kenya

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Abstract
The study was confined to find out the outcome of curriculum implemented in the target schools from1964 to 1985. This study adopted Critical Policy Sociology (CPS) otherwise referred to as Critical Policy Archaeology which was postulated by Trevor Gale in (2001) to excavate the sites and analyze the contents/subjects of the curriculum, how actors enacted policy, and their outcomes at the target sites. The study adopted a historical research design. Data collection involved a critical review of relevant literature; including several curriculum reforms documents and oral interviews. Snowball sampling was adopted to select 12 participants. Data analysis and interpretation were done through internal and external historical criticism. Based on the literature review and documentary analysis, there was overwhelming evidence for Kenya to review education at independence since Kenyan education has its roots in the colonial past. From the findings of this study, the following conclusions were made: First, curriculum reforms/subjects enacted in the target schools were foreign subjects from English Grammar School of UK. They were rather irrelevant to the needs of the majority of Kenyans after independence. Secondly, the State-controlled policy enactment process through MOE, KIE and TSC excluded practitioners' voices. Hence, the State had power over teachers on policy formulation and implementation. Based on the findings of objective one, there is need to improve our curriculum policy (but caution should be taken especially with imported education policies and ideologies/values. Even when policies are culturally relevant, locally mediated and re-contextualized the result of transfer remains unpredictable.

Keywords: Mobile learning, user satisfaction, content of curriculum, system efficiency

1. Introduction

According to [1] advancement in information communication technology and it applicability in education, has led to a paradigm shift on how teaching leaning processes is conducted. It is no longer a requirement for the learner and the teacher to meet in a conventional classroom for learning to take place [2]. With these realities, learning institutions have adopted the new changes in teaching and learning processes hence adopted learning online [3].

[4] States that many leaning institutions have adopted a hybrid system in the teaching learning, that is: the conventional physical classroom and the online classroom. This has not come with a myriad of challenges in implementing the online class [5]. In a way to address these challenges, several web-based classrooms resources has been developed in an endeavour to deliver quality [6]. This integration then necessitated the development of a web-based learning management system (WLMS) that could deliver instructor-led lessons using both the physical and online environment [7].

In their study [8] where there proposed model, interface usability issues of mobile learning applications for smart phones, was compared with similar mobile application based specially based on blackboard at western university London. The two models were evaluated in terms of ease of use, user satisfaction, attractiveness, and learnability. The results of the questionnaire showed that the participants considered the user interface based on our proposed framework more user-friendly as compared to the Blackboard-based user interface. A study by [8] established that heuristics evaluation is a proper, effective and fast usability evaluation method of m-learning applications with better results than the qualitative user testing, but still 26% of problems identified by students were not identified by experts. Whereas this study established a positive relationship between mobile learning usability attribute testing methodology and effectiveness of mobile leaning in Nigeria, there is paucity of information on the effectiveness of the available user models in Kenya and particularly in Egerton University.

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According to [9] Kenya has really invested in the development and use of mobile learning systems. However, like many developing nations, this mode of learning remains as its pilot stage defined with many challenges and who satisfaction on user satisfactions remains unreported. This presents a challenge in improving learning and meeting learners' expectations using mobile technology. There is also need to ensure that mobile learning systems add value to learning by providing relevant technologies that meet users' expectations hence this study.

2. System Efficiency on Mobile Learning System User Satisfaction

[10] Indicate that information quality, system quality, and service quality have a positive effect on user satisfaction, and the subsequent user satisfaction has a positive effect on net benefits. The multi-group analysis revealed that all the paths were significant for high SDL groups, whereas for low SDL groups, a path between information quality and user satisfaction was not statistically supported. These results suggest that a differentiated strategy based on SDL level is needed to improve user satisfaction and the net benefit of the mobile LMS. The results are expected to provide implications for the stable operation of mobile LMSs for cyber universities.

E-learning has become main stream in the education sector, especially, finding favor in higher education [11]. An instructor can use various technologies as means to impart e-learning. E-learning usually applies to all online learning that takes place via the internet [11]. In reality, the e-learning system is a World Wide Web-based educational program which offers versatile student education. The development of new technology has undoubtedly opened gates to provide anytime and anywhere learning, thus, extending reach to a widely dispersed population with access to the Internet, and a device such as laptop, computer, tablet or mobile [12]. This being said, without understanding the critical features, the implementation of the most innovative and recent technologies is pointless. Rather than having any academic reach, such implementation may just be a promotional exercise.

There is no question that in a dynamic and decentralized world, the Internet and other emerging technologies are enabling e-learning. Because of the variations in certain areas between conventional learning and e-learning, there is a need for efficient and productive transfer of conventional programs to e-learning [11]. The shift may involve a complicated undertaking that involves adequate preparation, tracking, and supervision. Besides, the consistently increasing worldwide demand for e-learning has prompted the adoption of web-based environments; however, these need to be first evaluated based on their performance [12]. The success of e-learning.

3. Materials and Methods

According to [13] a research design is a strategy for data collection and analysis to generate answers to the research problem. This study will employ a survey design. According to Best [14], survey design is about conditions that prevail; rehearses that win; convictions, perspectives or mentalities that are held; forms that are going on; impacts that are being felt or patterns that are developing. The study the target population will be a cross section of ICT department in the school sciences Egerton University. According the Egerton

University ICT department, there are 100 first year students, 121 second year students and 206 and 101 third year and fourth year students respectively with a suitable sample of 228 identified to represent the study population in the study. Questionnaires were used as the primary tool for data collection.

4. Findings

It is vital to explain how the mean values were interpreted throughout this study. The Mean values close to the high end of the scale (closer to 5) indicate high level and in contrast, while the mean values close to the lower end of the scale (1) indicate low level of the values. This interpretation is used throughout this study. In addition to the use of the mean to gauge the level of each item, the corresponding standard deviation of each item is also reported to evaluate the level of variation (agreement or disagreement) regarding each variable from the respondents.

The respondents were subjected to the key issues in the study variables to interrogate their effect on the user satisfaction. Table 4.2 captured the weighted mean and standard deviations.

Table 1: Descriptive Results of the Respondents

Variable	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Efficiency	2.26	1.432	.792	.172	-.867	.343

Findings from table 1 indicated that overall, efficiency; was generally below average with memorability being the only variable above average with a mean of 2.39 (SD=1.362). System efficiency had a mean of 2.26 (SD=1.432).

5. Correlation Results

The association between the study variables was investigated to determine the level and nature of correlation between the independent variables and the dependent variable. The results are presented. The correlation coefficients between the independent variables and the depended variables all have the expected positive sign, meaning that when the students have a positive perception of the system being (Efficient) the probability of user satisfaction is also high. In particular, the results suggests that users who view a system as efficient for learning, are more likely to be satisfied than the ones with that view a system as inefficient. Moreover, the correlations are all statistically significant since the associated p values are all less than the 0.05 significant levels. This means that the observed association is not a chance association. The significant independent variables are all candidates in the multivariate regression analysis to determine the joint influence of the each independent variable on depended variables.

Table 2: Correctional analysis

Correlations		
		V1
Efficiency V1	Pearson Correlation	1
	Sig. (2-tailed)	
Satisfaction V5	Pearson Correlation	.677**
	Sig. (2-tailed)	.000

In relative terms, the association between satisfaction and usability dimensions indicate of system Efficiency & effectiveness (i.e. usefulness and ease of use) is the strongest association (r=.677). These points towards a system that developers need to maintain on areas of prioritization and allocation of resources.

6. Regression Results

The four IVs were regressed on the DV so as to enable the research conclude on the influence of each of the system usability attributes on user satisfaction.

Table 3: KMO and Bartlett's Test

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.800ᵃ	.640	.632	.869

Regression analysis produces model estimates and model adequacy statistics. The R square provides the goodness of the model as it shows the amount of variability in the DV accounted for the model predictors. Based on the findings, the model accounts for 64.0 percent of variance in the satisfaction (R square=.640). When adjusted for the number of predictors, the model accounts for 63.2 percent of satisfaction (R square=.632, adjusted).

7. Regression coefficient table

The regression coefficient table provides the detail influence of each system usability attributes on user satisfaction.

Table 4: Regression coefficient

	B	Std. Error	t	P
(Constant)	4.084	.579	7.054	.000
Efficiency & Effectiveness V1	.377	.059	6.392	.000

Table 4.9 indicates that system efficiency has a significant influence on user satisfaction (B=0.377, p<.001). The hypothesis H_01 is rejected at 5% significant level. System Efficiency, a component of system usability is therefore a significant determinant of user satisfaction that should not be ignored.

8. Conclusions

Efficiency and satisfaction's regression results revealed that system efficiency supported user satisfaction. This result specifies that individual students will derive much satisfaction of the system if they perceive the using of the learning system as efficient. The study therefore concludes that there is a positive and significant relationship between system efficiency and user satisfaction

9. Recommendations of the Study

The university can achieve significant benefits as results of improved user satisfaction, but they have to ensure that the system is both efficient and effective (usefulness and easy to use). A number of studies have provided system strategies on how to improve efficiency and effectiveness. It includes training, allowing organizations to gather actionable feedback with intuitive reporting, admins can monitor employee performance and skill gaps among other strategies. If these strategies are well sustained through the university, the benefits accruing can transform the struggling universities, but it has financial implications that need to be brought into the delicate balance.

The study further recommends that the students complain on the efficiency of system ought to be addressed in a record time if the variance on user satisfaction has to be improved and sustained. To improve on the efficiency of the service delivery in terms of efficiency of the system, the universities should endeavor to outsource the service so as to bring about positive competition on service delivery hence, user satisfaction.

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