

SJAH Vol. 4, Issue 6, Page: 01-05, June

2019, ISSN: 2676-2803

Impact Factor (SJIF): 9.305

Journal DOI: 10.15373/22501991

International Peer Reviewed & Refereed

Journal with Indexed Journal Platforms

web: [www.damaacademia.com](http://www.damaacademia.com)

email: [editor@damaacademia.com](mailto:editor@damaacademia.com)

[Download from Journal site](#)

<https://damaacademia.com/sjah/>

### Author(s)

#### **Odhiambo Stephen Owino**

College of Humanities & Social Sciences, Faculty of Arts, Department of Sociology & Social Work, University of Nairobi

#### **Prof. Edward K. Mburugu**

College of Humanities & Social Sciences, Faculty of Arts, Department of Sociology & Social Work, University of Nairobi

### Correspondence

#### **Odhiambo Stephen Owino**

College of Humanities & Social Sciences, Faculty of Arts, Department of Sociology & Social Work, University of Nairobi

## The Impact of E-Learning on Academic Performance: A Case Study of Group Learning Sets

<sup>1</sup>Odhiambo Stephen Owino | <sup>2</sup>Professor Edward K. Mburugu

### Abstract

*This study focused on the impact of e-learning on academic performance. The study relates to a level one undergraduate module delivered using traditional lectures and e-learning based methods. E-learning has been revealed in this study not to have a positive impact on academic achievement contrary to the expectations of this study. The paper also examines the data for the presence of interaction effects between e-learning study hours and socio-demographic characteristics. This is undertaken to identify whether or not personal-characteristic-related learning style differences influence the extent to which students benefit from e-learning. It is found that, after controlling for other factors, female students benefited less from e-learning material than their male counterparts.*

**Keywords:** E-Learning, Academic Performance, IT Education

### 1. INTRODUCTION

Education is a key factor for sustainable development (Chimombo 2005). The significance of education, especially in developing countries, is increasing because of progressing pressure to catch up with the developed world regarding, for example, global competitiveness (Hawkins 2002). Predictably, educational settings are different in developing countries than in developed countries, such as low quality of education and narrow possibilities in attending schools in rural areas because of far distances and high opportunity costs (Ibid 2005). Chimombo, 2005 opines that country-specific circumstances have to be improved regarding compulsory and free education to foster general access to education. In Article 26 of the 1948 UN universal declaration of human rights the right of obligatory and free education for everyone is already committed (UN Human Rights 1948). Every year, more of the world's people become connected to the network, its bandwidth increases and its use becomes more integrated to all that happens in the globe. Connectivity to this network has become key to opportunity, success and fulfillment for individuals.

### 2.0 BACKGROUND OF THE STUDY

Every year, more of the world's people become connected to the network, its bandwidth increases and its use becomes more integrated to all that happens in the globe. Connectivity to this network has become key to opportunity, success and fulfillment for individuals. Kenya has defined a national ICT policy with a view of creating an e-enabled and knowledge-based society by the year 2015. Just like the technology has changed the world, it is now changing the learning and teaching environment. A broad range of learning approaches exists already, for example, e-learning, blended learning (Maier, 2007), and distance learning which utilize information and communication technology (ICT). The use of ICT can benefit, for example, students in rural areas by having them attend classes as distance learners and motivating them to learn like the "Group Learning Sets" (GLS) initiative offers. Regarding this, the potential of e-learning seems very assuring, but because of gaps between developed and developing countries knowledge transfer is not only difficult but also costly.

E-learning denotes the use of ICT by teachers and learners. Schmidt 2005 holds that e-learning consists of conventional training, such as courses, ad-hoc training, selected learning objects, formalization through document collections and community formation which can be achieved via social software. According to case studies, there are already a number of e-learning programs offered in developing countries (Kohn et al. 2008). These programs are developed by various national and international initiatives, for example, the group learning sets initiated by Computer

Aid International in collaboration with Kenyatta University. The growth of e-learning programs according to Lockwood and Gooley, 2002 is driven by the need for and potential of providing education in less expensive ways, increased access to information, effective learning and greater flexibility. Stephenson, 2001 posits that there is little systematic research into the overall effectiveness of e-learning as a learning medium despite the great interest in it. He acknowledges that while there is much more work to be done, a variety of e-learning courses aimed at making sustainable development a reality has been developed and demonstrate how e-learning can reach thousands if not millions of minds and potentially plant the seeds of change.

### **2.1 Electronic Learning (E-learning)**

Fry 2000 and Wild et al. 2002 describe E-learning as the delivery of training and education via networked interactivity and distribution technologies. Other authors notably Roffe, 2002; Schank, 2002; and Sambrook, 2003 see e-learning simply as learning and communication exercises across computers and networks or for that matter any other electronic sources. Khan (2005) pointed that E-learning has been described in various ways as learning using a number of different technologies and methods for delivery e.g. Computer Based Training (CBT), Internet-based training (IBT), Web-based instruction (WBI), advanced distributed learning(ADL), distributed learning (DL), distance learning, online learning (OL), mobile learning (or m-learning) or remote learning and learning management systems (LMS). In the 70s and 80s distance learning became popular and was done via mail until the rise of Internet usage. In late 90s the digital learning environment was heightened and World Wide Web started as a distributed learning mechanism to support on campus student and distance learners. With the use of this delivery technology learners can get a range of resources like discussion forums, multimedia, chat, video conferencing and electronic black boards (Gulatee and Combes, 2007).

In E-learning system, students are able to interact anytime from wherever with different instructional material (text, sound, pictures, video and so on) through Internet. In addition, learners can communicate with teachers and classmates both individually and as a group discussion with the use of message boards, instant message exchanges and video conferencing (Al-Ammari and Hamad, 2008). Khan 2005 suggests that e-learning system is used for an open, flexible, and diverse E-learning environment. Moreover, E-learning system can be analyzed as an inventive approach for delivering, learner-centered, interactive, and facilitated learning environment to anyplace, anyone, anytime by utilizing the features and resources of different digital technologies along with other types of learning materials suited for an open, distributed, and flexible learning environment (Ibid, 2008).

### **2.2 Group Learning Sets**

Computer Aid provided over 1,500 PCs to Kenyatta University. Many of these computers are being used for the university's cutting edge e-learning project, which is enabling rural students to pursue university courses remotely. Kenyatta University has made its courses accessible to people living and working in those communities. In particular, the university is targeting people who are already engaged in work that is vital to the social and economic development of rural and marginalized areas.

These 'key workers' include nurses, teachers, entrepreneurs and agricultural advisors. The University is encouraging students to study together and benefit from each other. In order to facilitate this collaborative learning, the University through the help from Computer Aid further put in place mechanism of providing students with computers. Students are encouraged to form small learning groups of five or six students called Group Learning Sets (GLS).

## **3.0 METHODOLOGY**

This chapter describes the methods that were used in the study. It explains the research design, the study population, sampling method and procedures, data collection procedures and instruments, data analysis, reporting and ethical issues.

### **3.1. Research Design**

The research design was an analytical survey. Analytical surveys also referred to as diagnostic studies attempt to describe and explain *why* certain situations exist. In this approach two or more variables are usually examined to test research hypotheses. The results allow researchers to examine the interrelationships among variables and to draw

explanatory inferences. In this study, the researcher sought to establish the relationship between prior computer skills; socio-demographic characteristics; and level of student engagement effect on academic attainment.

### 3.2 Unit of Analysis

According to Mugenda and Mugenda (2003) units of analysis are units that are designed for purposes of aggregating their characteristics in order to describe some larger group or abstract phenomenon. Nachmias and Nachmias (1996) describe the units of analysis as the most elementary part of the phenomenon to be studied. To Singleton et.al (1988; 69) they are “what or whom to be analyzed”. In this study, the unit of analysis was the different categories discussed in this paper as the ‘study modes’ (e-learning and conventional).

### 3.3 Unit of Observation

The unit of observation in this study was the individual students whose performance was aggregated to inform category performance.

### 3.4 Study Population

In this study, the population of interest is beneficiaries of the 1500 computers that were provided by ComputerAid international. Each computer was to be used by five e-learning students. The total population of the beneficiaries is  $(1500 * 5) 7500$  students. An equivalent population was targeted for students under the conventional learning mode so as to avoid overrepresentation of one category. The total population in this study was thus fifteen thousand,  $(7500 * 2 = 15000)$  being seven thousand five hundred on the e-learning program and seven thousand five hundred on the conventional study mode. From the total population, a sample of one hundred and fifty students’ constituting seventy-five on e-learning mode and seventy-five on the conventional study mode was targeted. This is a total sample population of 150 which is 1 percent of the total population. The sample 75 for each category was guided by Dr. John Curry Professor of Educational Research, North Texas State University (now retired), who provided his research students (fall, 1984) with the “rule of thumb” on sampling (Gay, 1987) presented in the table 3.1 below. The sample size was also deemed appropriate when it was noted that the beneficiaries of the group learning sets are spread across the country, time and finances did not allow for inclusion of a bigger number. On the same note, in the bid to have equal representation, the number seventy-five was settled for students under traditional learning mode.

**Table: 3.1 Population sample size**

Size of population	Sampling percent
0-100	100%
101-1,000	10%
1,001-5,000	5%
5,001-10,000	3%
10,000+	1%

Source Gay (1987)

### 3.5 Sampling Method and Procedures

Through a systematic random sampling procedure where a neutral start point was identified by the researcher where the first student was identified randomly, within the study location. It was key to consider gender parity in the study, as such for those under conventional study mode, if a male student was picked the next was to be a female respondent. Identification of the starting point was done at the gate of Kenyatta University, the data collection was done on one side of the road towards the administration block, upon reaching the administration block, and the other side of the road was taken towards the gate. After identification of the first respondent, five students were past then the sixth was included in the study, if the sixth student was not of the opposite gender, five more students were past till the opposite gender was found. The process was repeated until seventy-five respondents were interviewed. To identify e-learning respondents, a list of students was obtained from the institution, systematic random sampling was then used to select seventy-five students. A starting point was first randomly picked then every fifth name in the list was included in the sample. Questionnaires were then sent online to the selected seventy-five students.

### **3.6 Data Collection Procedures and Instruments**

The main instrument of data collection in this study was questionnaires. The items in the questionnaire were structured (closed ended) and unstructured (open ended). The structured questions measured the subjective responses to clarify the objective responses and at the same time, enhance formulation of recommendations of the study. The researcher used trained research assistants to collect data.

### **3.7 Data Analysis and Reporting**

According to Miles and Huberman (1994) data analysis is an iterative process. Data analysis consists of three activities: Data reduction, Data display, and Conclusion drawing/verification". Data reduction, this process is applied to qualitative data and focus remains on selection, simplification and transformation of data. In this continuous process the data is organized throughout the research to draw and finalize a conclusion (Miles and Huberman, 1994). In this research, the data was reduced from critical elements in implementation of E-learning to students' academic performance. In data display the data is displayed in an organized form or the data has to be put into an order to easily draw the conclusion. Tables and graphs are used to indicate distinct frequencies of various factors of E-learning implementation and academic performance.

### **4.0 CONCLUSION**

The majority of the respondents in this study were male (52 percent), indicating that more male than female is admitted in higher learning institutions. The findings of the study show that majority of students (47 percent) have never been married and are in the conventional learning system, on the other hand 46 percent of students on e-learning program are married. The findings also show that 19 percent of the respondents had between 1 – 2 children, 22 percent had between 3 – 5 children, while the majority 58 percent had between 5 – 9 children. On comparison, students on conventional learning mode performed highly as compared to those on e-learning, of the students who scored A's, 83 percent were on the conventional learning system, those on e-learning program was only 17 percent of the total A's scored. Conversely, majority of the students who scored C's were those on e-learning (74 percent) mode of study. It was revealed that gender was a factor that influenced the number of hours the respondents studied. Majority (52 percent) of those who studied for 5- 9 hours were male while the majority (50 percent) of those who studied for 3 – 5 hours were female. It was revealed that male who studied for 3 – 5 hours were only 14 percent of the population.

On comparing the study hours' students under e-learning and those on-school program spent studying per day, it was found that majority of 44 percent of the student on e-learning mode studied for less than 2 hours a day while the majority (74 percent) of those under the conventional learning program spent between 5 – 9 hours studying a day. It was further revealed that study hours per day significantly influence the academic performance of students, students who spent between 5 – 9 hours a day accounted for 83 percent of the total A's scored. To measure the impact of prior computer skills on academic performance, the study sought to know whether the students were anxious while using computers, 1 percent of the respondents indicated that they were somewhat anxious, 10 percent of the respondents were found to be a little anxious, the majority 89 percent however indicated that they were never anxious while using computers. As for the extent of anxiety, only 2 percent of the respondents indicated that they are somewhat anxious, however 10 respondents are a little anxious whereby out of this 10, 9 scored an average score of B representing 9 percent of the total respondent who are a little anxious the remaining respondents scored an average score of C, hence all the 12 respondents who scored an average score of A are not anxious at all, and 40 and 37 respondents who are not anxious at all scored an average score of B and C respectively. The findings can be deduced to mean that the more anxious a student gets while using computers the higher the chances of not performing well for the students on e-learning mode.

The study sought to know whether students dramatized computer situation in their mind even when not using computers. This was intended to know whether the students had prior computer skill or not. Two percent and 7 percent of the respondents indicated they sometimes, and occasionally respectively dramatized computer situations in their mind, 91 percent of the respondents never dramatized computer situations in their mind, this indicate that the majority were comfortable with computers reflecting that they had previously used computers. Further the study sought to know whether the respondents had any difficulty in using computers, two percent of the respondents indicated they had difficulty in using computers all the time, a similar percentage indicated they sometime had difficulty in using computers. Twenty-one percent of the respondents indicated that they had a little difficulty using computers. The

majority (75 percent) of the respondents indicated that they never experience any difficulty using computers. Majority of respondents never find it difficult using a computer giving a total count of 75 of the respondents which gives a percentage of 75 percent of the respondent, however breaking this down to the average score, 37 percent respondents scored B's 28 percent scored C's and 10 percent scored A's. out of the total of 100 respondents, 21 responded representing 21 percent of the total number of respondents found it a little difficult using computers breaking this down to scores we find that 22 percent scored B's 21 percent scored C's and 2 percent scored A's.

## References

- Abdul-Rahman, Z. (1994). Factors related to completion of distance education courses in the off-campus degree programme at the university saints of Malaysia. UMI (UMI No. 9425449).
- Al-Ammari, j. And Hamad, S. (2009), "Factors Influencing The Adoption Of E-Learning At UOB", University Of Bahrain.
- Ani, Okon E. and Ahiauzu, B. (2008). Towards effective development of electronic information resources in Nigerian University Libraries. *Library Management* 29(6/7): 504 – 514.
- Aragon, S. R., Johnson, S. D., & Shaik, N. (2002). The influence of learning style preferences on student success in online versus face-to-face environments. *The American Journal of Distance Education*, 16(4), 227-244.
- Arbaugh, J. B. (2000). How Classroom Environment and Student Engagement Affect Learning in Internet-based MBA Courses. *Business Communication Quarterly*, 63(4), 9-26.
- Atkinson, M. & Kydd, C. (1997). Individual characteristics associated with World Wide Web use: An empirical study of playfulness and motivation. *The Data Base for Advances in Information Systems*, 28(2), 53-62.
- Barker, K., & Wendel, T. (2001). E-Learning: Studying Canada's Virtual Secondary Schools. Kelowna, BC: Society for the Advancement of Excellence in Education. Online at <http://www.excellenceineducation.ca/pdfs/006.pdf>.
- Blum, K. D. (1999). Gender differences in asynchronous learning in higher education: Learning styles, participation barriers and communication patterns. *Journal of Asynchronous Learning Networks*, 3(1).
- Bond, A. (2002). Learning Music Online: An Accessible Program for Isolated Students. Kensington Park, SA: Australian National Training Authority. Online at <http://www.ncver.edu.au/research/proj/nr1013.pdf>.
- Boyd, D. (2004). The characteristics of successful on-line students. *New Horizons in Adult Education*, 18(2), 31-39.
- Breuleux, A., Laferrière, T., & Lamon, M. (2002, May). *Capacity building within and accross countries into the effective uses of ICTs*. Paper presented at the 2002 Pan-Canadian Education Research Agenda Symposium, Montreal, QC. Retrieved from <http://www.cesc.ca/pcera2002E.html>
- Bryson, M., Petrina, S., & Braundy, M. (2003). Conditions for success? Gender in technology-intensive courses in British Columbia secondary schools. *Canadian Journal of Science, Mathematics and Technology Education*, 3(2), 185–193.
- Calderoni, J. (1998). Telesecundaria: Using TV to Bring Education to Rural Mexico. Education and Technology Technical Notes Series: World Bank Human Development Network. [http://wbIn0018.worldbank.org/HDNet/HDdocs.nsf/C11FBFF6C1B77F9985256686006DC949/1635F1703FE053B385256754006D8C3F/\\$FILE/telesecundaria.pdf](http://wbIn0018.worldbank.org/HDNet/HDdocs.nsf/C11FBFF6C1B77F9985256686006DC949/1635F1703FE053B385256754006D8C3F/$FILE/telesecundaria.pdf)
- Calvert, B. (1986). 'Facilitating transfer of distance courses'. A paper presented at the 8th World Conference of International Council of Distance Education, Melbourne, Australia.
- Carini, R.M., Kuh, J.D. & Klein, S.P. (2006). Student Engagement and Student Learning: Testing the Linkages. *Research in Higher Education*, 47, 1-32.