

## Utilization of Blended Approach Mode in Teaching and Learning for Undergraduate Nurses in Kenya- Post Intervention Outcome

David Kaniaru<sup>1,\*</sup>, Anne Karani<sup>2</sup>, Waithira Mirie<sup>2</sup>, Prof Nyangina

<sup>1</sup>Masinde Muliro University of Science and Technology, School of Nursing Midwifery and Paramedics

<sup>2</sup>Nursing and Nursing Education, School of Nursing Science University of Nairobi

Corresponding Author: David Kaniaru<sup>1</sup>

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### Abstract

**Background:** Blended learning approach refers to a combination of online and face to face methods in response to learner need and for the achievement of instructional objectives. Technological advancement in the world is influencing the nature of how disciplines conduct training. In order to match with this expectation, nursing has been influenced by both theoretical and clinical practice. Blending represents a fundamental change in the way teachers and students approach the teaching-learning experience. The practice of using technology to deliver coursework in Universities worldwide has seen a veritable explosion in adoption.

**Purpose:** The study aimed at determining utilization scale of engagement in use of blended approach mode in teaching and learning in Kenyan universities during preintervention phase and post intervention phase

**Methodology:** This study applied mixed design method in order to obtain detailed information from the study participants of interest to the researcher. The study involved conducting teaching and managing one fourth-year course "NRS 400: Education Concept and Teaching Strategies in Nursing" in the selected study sites for one trimester, by use of blended mode and conventional teaching and learning strategies. Four out of nineteen (4/19) universities in Kenya that offered Bachelor of Science in Nursing were sampled by use of convenience non-probability sampling. The sample population included two public and two private university. One public and one private university were used as experimental group and control group respectively. The study participants comprised of only general nursing lecturers and fourth year nursing students. Consent forms were filled from the study sites and study participants, anonymity and confidentiality during the study period was maintained. Data was collected by use of observation, self-reported questionnaire. Descriptive and inferential data was processed and analyzed in order to generate simplified information.

**Results:** A total population of (n= 486) comprised of 175 (36.0%) male and 311 (64%) female participants who consented for the study. The students had a mean age of 22 years. 302(62.1%) students were motivated to adopt and use blended mode of learning during the intervention phase while, participants strongly agreed during pre-intervention phase, 405/486 ( 83.33%) agreed, 27/486 (5.56%) were neutral, while 39/486 (8.03%) disagreed. In the control group, 15/486 (3.09%) participants strongly agreed, 133/486 (27.37%) agreed, 43/486 (8.85%) were neutral, while 11/486 (2.26%) disagreed. During post intervention phase evaluation; 1/340 (0.29%) participants strongly agreed, 33/340 (9.71%) agreed, 43/340 (12.65%) were neutral, while 143/ 340 ( 42.05%) disagreed that they had experienced anxiety prior to undertaking a course via elearning. The pretest group recorded a mean of 2.265 while the posttest group had a mean of 4.031 with a Std. Deviation of 1.028. Furthermore, 376 (75.1%) students stated that they had experience problems with use of learning platform. 109 (22.4%) student's agreed that Moodle interface was easy to use. 402 (82.7%) students indicated that they had experienced internet discussions while.

**Recommendations:** More emphasis during sensitization needs to be done in order to increase high level of engagement and utilization of the same in order to address anxiety among students therefore lecturers need to offer continuous support to students as a good gesture role model. More Benchmarking and adequate training should be organized for students to increase the exposure on use of eLearning.

**Conclusion:** There is utilization of blended teaching and learning mode among universities offering Bachelor of Science in Nursing in Kenya but not fully utilized as shown in the above and similar studies in the world. Lecturers have the knowledge on eLearning and teaching but are reluctant to engage and use the system to affect the learning.

**Keywords:** utilization, blended teaching and learning mode, nurse, Moodle, post intervention, control, pretest

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## **I. Introduction**

Blended learning approach refers to the systematic integration of online (eLearning) and face-to-face engagement to support and enhance meaningful interaction between the teacher and students as suggested by Garrison and Kanuka, (2004). It is an education program (formal or informal) that combines online digital media with traditional classroom instructional methods. More so, it creates a learning experience whereby the learner interacts with other students, with the instructor, and with e-contents

Through thoughtful integration of online commonly known as eLearning environments at their own pace (Arbough, 2008).

Nursing historically has been a form of occupation influenced from a variety of health-related disciplines according to (Donaldson & Crowley, 2012). Similarly, it attracts a diverse range of people who all come up with varying ideas about what it is to be a nurse (Gallagher, 2007). Students entering the health profession does have different styles of learning. They also experience different learning needs and have a variety of outside lifestyle commitments. Many approaches have been suggested as applicable when addressing the differing learning styles and needs of students as noted by Bloomfield et al., (2008). Therefore, blended learning is one such an important approach that enables the integration of face-to-face contact with online interactions (j& Graham, 2006) because they furthermore argue that, it provides a flexible platform which aids in addressing diversity that is seen in students' learning styles. Internet-based Education (IBE) has gained new ground as legitimate instructional method replacing traditional educational methods such as lectures and textbooks. Dickerson et al., (2004). IBE was developed to present teaching content using information and communication technologies. It can range from simply presenting lecture slides to integrating content into virtual learning experiences using computers and other electronic devices. Jong et al., (2007). Many universities in the world for long period of time have been using traditional instructional methods which are the delivery of learning contents through; face-to-face lectures, textbooks, booklets, brochures, or verbal interactions. Both lecturer and the students are confined in a given physical environment where the teaching and learning take place. Joel et al., (2013)

Blended learning approach is still in its inception in the developing countries which are experience challenges (Arbough at el., 2002)) various aspects of e-Learning have been examined in developing countries in an attempt to increase university enrolment and provision of flexible education. Among other key issues includes:- technology-based learning components, students and teacher satisfaction ( Lawi at el., 2007) participations interaction with online environment and the students experience ( Gilbert at el., 2011) while in the developing countries, many of them have expressed an interest to implement e-learning but face obstacle in infrastructure resources and information access Raab et al. ( 2008) such as bandwidth technology and connectivity instructor's design and technology confidence (Hussein at el., 2007) studies that examine e-learning in the developed countries than studies that examining in developing countries especially about lecturer and students readiness for this method of learning.

It is important to distinguish blended learning from other forms of learning that incorporate online opportunities. First, blended learning is distinguished from that of enhanced classroom or fully online learning experiences. However, it is not clear as to how much, or how little, online learning is inherent to blended learning. In fact, this is only a rough, indirect measure that may be misleading. The real test of blended learning is the effective integration of the two main components (face-to-face and Internet technology) such that we are not just adding on to the existing dominant approach or method. This holds true whether it be a face-to-face or a fully Internet-based learning experience. A blended learning design represents a significant departure from either of these approaches. It represents a fundamental reconceptualization and reorganization of the teaching and learning dynamic, starting with various specific contextual needs and contingencies (e.g., discipline, developmental level, and resources). In this respect, no two blended learning designs are identical. This introduces the great complexity of blended learning. The core issue and argument is such that, when we have solid understandings of the properties of the Internet, as well as knowledge of how to effectively integrate Internet technology with the most desirable and valued characteristics of face-to-face learning experiences, a quantum shift occurs in terms of the nature and quality of the educational experience.

Across East Africa, there are more students interested in having third level qualifications than there are available places. The Government of Kenya has tried to enhance access by accrediting Constituency University Colleges as fully-fledged Universities as from 2013, thus increasing the number of places available. One way to address constraints in available physical infrastructure and teaching staff was to adopt some form of online or distance learning. Technology-enhanced Learning (TEL) Techniques (which encompass eLearning, Blended Learning, using Massive Open Online Courses (MOCCs) or an entirely online course delivery) can support a diverse grouping of students (located on campus or remote, full-time or part-time), larger student numbers and facilitate a deeper understanding of the course material by providing additional materials with which students can interact, complemented by online discussion forums. Successful realization of this vision requires appropriate policy guidelines, a minimum level of available digital infrastructure and associated human capacity ICT is an important pillar of Kenya Vision 2030 and eLearning is seen as a key mechanism to realize accessibility to

competitive quality higher education (Nyerere et al., 2013) argue that while Open, Distance and eLearning (ODEL) was introduced in Kenya to address increased demand for learning, economic and infrastructural challenges impacted on delivery. Digital Infrastructure has dramatically improved in Kenya over the past five years and KENET (Kenya Education and Research Network) is supporting 115 campuses Cunningham et al., (2014) Kashorda, (2014) outlined that while there has been a noticeable increase in Internet bandwidth and availability and students indicated a preference for blended learning, there were low numbers of eLearning courses provided by Kenyan Higher Education Institutions (HEIs) during the 2012/2013 academic year. A literature review of ACM, IEEE Xplore and relevant eLearning Journals found that despite general acceptance that TEL can support access to education in Africa, perceived constraints directly affecting HEI uptake of ICT-based course delivery include technical, financial, human and institutional aspects as noted in the following studies, Tarus et al., (2014), Isabirye&Waema (2014), Oroma&Mduma, (2013a ) and Tashabala et al., (2014). Nowadays, so many universities are starting to provide web-based courses that complement classroom-based learning even though still in their developmental stage on ICT Ijtihadie at el., (2010), Kusemo at el., 2012 & Ahmad at el., (2011) others are exploring perspective towards e-learning. There are no comparative studies published focusing on the engagement scale on adoption of TEL techniques based on a cross section of higher education institution in Kenya.

The majority of the universities in the developing countries that are moderately utilizing internet-based learning are found with the major town due to established infrastructure advantage. This makes it easier to utilize the network connectivity. Other universities are using blended learning system. The term blended is often applied to any courses that combine online and face to face instruction methods. Although some researcher have differentiated blended learning and considered other formats based on upon a percentage of time spent online Gilbert at el., (2007) by combine the power of synchronous asynchronous activities in a synergistic relationship between internet based learning with that of traditional instruction methods this force has the potential power to transform higher education to great level of achievement

Since eLearning has become highly popular in higher educational institutions, throughout this process, there has been and will continue to be a need for lecturers and students to re-examine their capabilities to use the method of learning Min-Lin at el., (2010). Hopefully, in the process of running this task lecturers can design better e-learning courses and assist their students towards successful and fruitful eLearning experience. As the readiness of lecturers and students eLearning is critical factors to the success of implementing the eLearning in the university. It's worthy whether they are well familiar prepared to engage in this learning mode during teaching and learning process.

## **II. Methodology**

This study to find Utilization of Blended Approach Mode in Teaching and Learning for Undergraduate Nurses in Kenya used mixed methods design with specific application of concurrent triangulation strategies. One public and one private university were deemed to be the experimental group and control group respectively. These includes; Masinde Muliro University of science and technology, Maseno University which are public universities, while, Great Lake of Kisumu University, and University of Eastern Africa Baraton are private universities. The four universities are located in the western part of Kenya.

Study participants were students from school of nursing. Purposive sampling was used in identifying fourth year nursing students. Students were selected randomly by aid of a random table enabling minimization of biasness in selection of study participants as noted by Rose, (2007). A sample of 486 participants were obtained by

use of Yamane formula (1967),  $n = \frac{N}{1 + N(e)^2}$  from a target population of 865. Simple random and purposive

sampling methods were used to achieve the desired study sample of 486. All fourth-year registered nursing students at the time of study were eligible for the study and their respective general nursing lecturers. All nursing students in their first, second, third year, absent from School and not registered at the time of the study were not eligible. Plus, all other students who were undertaking any other program in the University during the time of data collection were also deemed to be excluded from the study. Research permit was obtained from, NACOSTI-Kenya, ERC of the selected university study sites of the universities involved in the study. Information sheet, consent form was also provided and filled by the study participants before commencement of data collection. In addition, anonymity and confidentiality were assured. Self-administered questionnaire was completed by participating students which consisted of section A, closed ended questions to capture demographic information while Section B adopted a modified five Likert scale items to capture engagement on the use of internet-based learning platform at the University of the subjects on the study. The responses were on a five-point rating of Strong Agree (SA)-5, Agree (A)-4, Neutral (N)-3, Disagree (D)-2 and Strongly Disagree (SD)-1. The questionnaire was filled before the course was taught and after the teaching of the course which served as the

intervention phase. A control Group was also identified and both the pretest and the posttest responses were recorded. The questionnaire was reviewed by experts in the department of nursing at University of Nairobi College of Health Science and its contents validated after pilot study. Statistical Packages for Social Sciences (SPSS) computer packages version 23 was used to code, organize and analyze the data. Descriptive statistics of mean, percentages standard deviation, frequency distribution was used to summarize data. Chi square was used to determine the association of the engagement scale of blended learning of the participants to their respective university.

### III. Results

Four hundred and eighty-six (486) subjects participated in the study. 175 (36.0%) were male while 311 (64.0%) were female. The respondents were of varied age between 20 years (0.4%) to 37 (0.2%) years of age. Majority were 23 (50.6%) years, followed by 24 (14.4%) years, 25 (12.6%) and 22 (4.7%) years old respectively. But the male gender had a mean of 24.8 while the Female gender had a mean of 24.0. Table 1 show the demographic characteristics of the study subjects.

Among other demographics the respondents were required to answer which category of university they came from. The target subjects were sampled from public and private universities 64.4% of the respondents came from public university while 35,6% came from private universities as illustrated in Table 2.

**Table 1.** Respondents mean age

Gender	Mean	N	Std. Deviation
Male	24.8229	175(36%)	3.24968
Female	24.0289	311(64%)	2.38323
Total	24.3148	486(100%)	2.75038

**Table 2.** University category of respondents

	Frequency	Percent
Public	313	64.4%
Private	173	35.6%
Total	486	100.0%

First, the respondents were asked questions in order to check their Utilization of Blended Approach Mode in Teaching and Learning for Undergraduate Nurses in Kenya. The first question asked is whether the students were anxious in conducting teaching/Learning through internet platform. 15/486 (3.09%) study participants strongly agreed during pre-intervention phase, 405/486 ( 83.33%) agreed, 27/486 (5.56%) were neutral, while 39/486 (8.03%) disagreed. In the control group, 15/486 (3.09%) participants strongly agreed, 133/486 (27.37%) agreed, 43/486 (8.85%) were neutral, while 11/486 (2.26%) disagreed. During post intervention phase evaluation; 1/340 (0.29%) participants strongly agreed, 33/340 (9.71%) agreed, 43/340 (12.65%) were neutral, while 143/ 340 ( 42.05%) disagreed that they had experienced anxiety prior to undertaking a course via elearning. The pretest group recorded a mean of 2.265 while the posttest group had a mean of 4.031 with a Std. Devaition of 1.028. Secondly the respondents were asked whether they believed in their capability to interact with technology. Results show that during pre- intervention phase 26/486 (5.35 %) participants strongly agreed that they had the ability to interact with ICT during teaching – learning exercises, 136/ 486 (27.98%) agreed, 33/486 (6.790%)study participants remained neutral, 11/486 (2.26%) strongly disagreed. Similarly, during post intervention phase 77/340 (22.64%) study participants strongly agreed to be using ICT in there day to day academic work, 227/340 (66.76%) agreed on the same, 22/340 (6.47%) remained neutral and 7/340 (2.06%) disagreed. The t-test yielded a  $t=14.390$   $df= 971$   $p=.0001$ . Thirdly the respondents were asked they were ready to engage in doing the e-learning activities. Results in figure 5.2 show that during pre-intervention phase 312/486 (64.20%) study participants agreed to be ready at engaging in e-learning activities, 150/486 (30.86) participants were neutral. While during post intervention evaluation 32/340 (9.41%) participants strongly agreed and 301/ 340 (88.52%) agreed. the group had a t-value of  $t=-4.141$ ,  $df=971$ ,  $p=0.001$

Fourthly the respondents were asked whether they were willing to participate in e-learning activities. During the pre-intervention phase of the research 7.4% (n=36) strongly agreed that they were ready and willing to participate in e-learning activities, 26.3% (286) Agreed, 22.0% were Neutral while 26.7% and 17.5% Strongly Disagreed and Disagreed respectively. The control group had the majority of them 27.8% (37) Agree while 27.0% Strongly agreed. 19.5% were on Neutral while the least 9% strongly agreed that they were willing to engage in eLearning activities. The posttest group majority agreed on the willingness to participate in e-learning activities 51.8% followed by 29.8% who strongly agreed. The least 0.005% Disagreed that they were willing to participate in e-learning activities while 15.6 were neutral about participating on eLearning. Fifthly the respondents were asked whether they had the motivation to use e-learning platform. During pre-intervention phase 22/486 (4.523%)

study participants strongly agreed that they had personal a passion of engaging in teaching-learning activities via e-learning mode; 302/ 486 (62.14%) agreed, 121/486 (24.90%) were neutral, while 39/486 (8.02%) participants disagreed. However, during post intervention phase 42/340 (12.35%) participants strongly agreed and 199/340 (58.53%) agreed. The pre-intervention group recorded a mean of 3.21 while the control group recorded a mean of 3.14 and the posttest group had a mean 2.731. The sixth question asked by the respondents was whether they have the initiative and motivation to learn and use the system. During pre-intervention majority 79% (386) of the respondents Disagreed that they had high level of self confidence in using e-learning platform with 0.62% (3) strongly agree. The control group showed a similar trend with the majority 63% (84) on Disagree while 17% (22) strongly Disagreed and 2% (3) were on a strongly Agree. During the post intervention phase 50% (175) strongly agreed that they had high level of self confidence in using e-learning platform, 39% agreed, 7% were on neutral while 0% (1) strongly Disagreed that they had high self confidence in using e-learning platform.

The sixth question asked by the respondents was whether they have the initiative and motivation to learn and use the system. During pre-intervention majority 79% (386) of the respondents Disagreed that they had high level of self confidence in using e-learning platform with 0.62% (3) strongly agree. The control group showed a similar trend with the majority 63% (84) on Disagree while 17% (22) strongly Disagreed and 2% (3) were on a strongly Agree. During the post intervention phase 50% (175) strongly agreed that they had high level of self confidence in using e-learning platform, 39% agreed, 7% were on neutral while 0% (1) strongly Disagreed that they had high self confidence in using e-learning platform. On test statistics the group showed a drop in means from the pretest group to the control and a sharp decrease in mean at the post test. The mean difference was 3.484 with a significance of .001.

The seventh question was asked of the respondents whether they were satisfied with time and place flexibility of the system. During the pre-intervention stage 62% (302) Disagreed which was similar to 62% (83) during control phase. 2% (10) strongly agree that they were satisfied with time and place of the eLearning platform during the intervention stage. During Post-test majority of the respondents 53% (187) Disagreed, followed by 25% (87) on neutral while a minority of 3% (9) reported to strongly agree that they were satisfied with time, place of the e-learning platform. On ANOVA the means had a  $F=4.185$  sig=0.015 with a mean difference of 4.107.

The eighth question that was raised to the respondents was whether they had satisfaction with time and place flexibility of the system on eLearning. During the preintervention phase, majority 61% (295) of the respondents Disagreed followed by 20% (97), 14% (67), 5% (26) on Agree, Neutral and Strongly agree respectively. The control group had a 31% (41) on Neutral with 29% (38) on Disagree and 0 respondents with Strongly agree. During Post-intervention phase 34% (121) Agreed, 24% (84) Strongly Agreed, 30% (105) Disagreed while 9% (31) and 3% (12) strongly Disagreed respectively that there was information credibility in eLearning platform. The mean differences between the groups was 3.537 with a Sig. of  $P=0.00$ .

The Ninth question raised was intending to understand whether The Moodle interface was clear and easy to use. 52% (255) Disagreed, 22% (109) Agree, 14% (69) Strongly agree and the minority being 11% (53) were on Neutral during the Pre-intervention phase of research. The majority 33% (44) and 32% (43) Disagreed and Strongly Disagreed respectively, 29% (39) Agree and Finally 5% (7) were on neutral in the Control group with no response on Strongly Agree. On post-Test 50% (117) Strongly Agreed followed by 44% (155) Agree, Neutral 14% (49), Disagree 7% (23) and Strongly Disagree 3% (9) that Moodle interface was clear and simple to use.

The Tenth question inquired of reliability of the IT infrastructure is and whether it was reliable and secure. During pre-intervention the majority 65% (318) Disagreed, 13% (64) Agreed, 7% (35) were on Neutral with no respondents Strongly Disagreeing. The Control Group were divided as follows; 67% (89) Disagreeing, 13% (17) Strongly. Disagreeing, 10% (13) Agree, 6% (8) Neutral and 5% (6) strongly agree. The posttest group respondents with a majority 26% (93) Disagreeing, 21% (. 73) Strongly Disagreeing, with 19% (66), 18% (63) and 16% (57) following up closely at Agree, Strongly Agree and Neutral respectively. The mean difference between the groups was 3.890 with a Sig of .001. the mean difference was shown in the mean plot shown below. The eleventh question under the objective of engagement scale of eLearning that was asked was whether there is adequate investment in infrastructure to support electronic performance. during preintervention phase 54/486 ( 11.11%) of study participants agreed, that their respective universities had made investments on ICT serviceses, 21/486 (4.32%) were neutral, 73/486 (15.02%) strongly disagreed and 338/486 (69.54%) disagreed. While during the post intervention phase 46/340 (13.52%) study participants agreed, 15/340 (4.41 %) were neutral, 49/340 (14.41%) strongly disagreed and 230/340 (67.64%) disagreed that their respective universities had made some investment with regard to improving ICTs serviceses within the universities in order to enhance service provision. The groups had a mean difference of 4.373 with the pre-test group having a higher mean and the post-test posting the least mean. Sig was  $P=.001$ . The twelfth question raised was whether the screen layout and design were appropriate. None of the respondents Strongly agreed through the whole research in pre-intervention, control and post-test. 70% of the respondents (340) Disagreed followed by 13% (63), 11% (55) and 6% (28) on Neutral, strongly agree and Agree respectively during the preintervention phase. The control group responded with a majority of 31% (41) on Neutral 29%, (37), and 28% (37) on strongly agree and disagreed

respectively with the minority of the respondents having 12% (16) agreed. during the post-test phase the minority of the respondents had 5% (16) agree with 12% (44) strongly agree and 16% (55) on Neutral. The majority of the respondents 67% (238) Disagreed that the screen layout and design was appropriate for use. The groups recorded different means with a mean difference between the pretest and the posttest being 4.346, sig=0.001. The thirteenth question asked was whether the learners were rarely disconnected during online tutorial sessions.

The were no responses on Strongly agree through the experiment. During the pre-intervention majority of the respondents 83% Disagree and the minority 1% strongly agrees that they were seldomly disconnected during online sessions. 72% of the respondents Disagreed followed by 26% and 1% Agree and neutral respectively during the control phase. During the posttest 78% of the respondents Disagreed with 17% and 5% on Agree and neutral respectively. Both the strongly Disagree and strongly agree recorded a no response in this phase of the experiment. Of keen interest in the means of the different groups is the minimal difference between the upper and the lower by 0.142.

The fourteenth question enquired whether they were satisfied with the browsing speed of their university website. During pre-intervention, the study results in figure 5.7 show that 66/486 (13.58%) study participants agreed that they were satisfied with the browsing speed of their respective university websites thus enhancing the teaching and learning process. 58/486 (11.93%) remained neutral, and 354/486 (72.83%) disagreed on the same. During post intervention phase 15/353 (4.41%) of study participants agreed, 42/353 (12.35%) were neutral, and 275/353 (80.88%) disagreed that the university internet speed was of satisfying. The notable change from the pre-intervention to the post-test can be attributed to the mean change of 4.415 and difference between the upper and the lower of 0.142 and sig=0.001. Lastly the respondents were asked if they experienced problems while navigating the Moodle interface During pre-intervention phase majority 75% (365) Disagreed followed by 15% (75) on Neutral and 5% (34) and 2% (10) on agree and strongly agree respectively. None of the respondents recorded that they strongly agreed that they did not experience problems while navigating Moodle platform. The control group had majority 92% (123) Disagreed, with a 2% on both strongly disagreed and Neutral. The post-test group posted a majority of 72% (254) and 22% (78) on Disagree and Neutral respectively. Minority of them believed that they experienced problems with 1% (2) and 3% (9) who strongly agreed and agreed respectively. The mean difference between the pre-test and posttest was minimal but a significant difference was seen on the control group. 22 lecturers were sampled in the study. Majority 92% (20) of them were male while the rest were Female lecturers. During the preintervention phase majority 88% (19) agreed that they were anxious in conducting teaching/Learning through internet platform. 100% of the lecturers strongly agreed that they believed in their capability to interact with technology while 89% (20) Agreed that they had the ability to interact with ICT during teaching despite this observation 22% (5) only agreed that they were ready to engage in doing the e-learning activities while the rest were uncertain and others strongly Disagreed. The lecturers were asked whether they had the motivation to use e-learning platform, majority 66% (15) Strongly Disagreed. During pre-intervention phase the lecturers strongly disagreed that they had personal a passion of engaging in teaching activities via e-learning mode. The lecturers were asked whether they had the initiative and motivation to use the system majority of the respondents were uncertain on whether they were ready. asked by the respondents was whether they have the initiative and motivation to use the system. During pre-intervention majority 79% (17) of the respondents. When the lecturers were asked whether they were satisfied with time and place flexibility of the system majority were uncertain. On satisfaction with time and place flexibility of the system on eLearning 55% (12) agreed that they were comfortable.

When asked whether the Moodle interface was clear and easy to use, 52% (11) Strongly Disagreed. On the reliability of the IT infrastructure and whether it was reliable and secure majority 88% (19) disagreed. A question under the objective of engagement scale of eLearning was asked whether there is adequate investment in infrastructure to support electronic performance majority 99% (21) Disagreed.

#### **IV. Discussion**

This study was conducted on Nursing undergraduate students currently registered in the selected universities of study to assess the utilization of blended approach learning mode in undergraduate learning. The total number of participants for the study was 486 of varied age from 20 years (0.4%) to 37 (0.2%) years, majority were 23 (50.6%) years, followed by 24 (14.4%) years and 25 and 22 years old at 12.6% and 4.7% respectively. The respondents were 36.0% male and 64.0% female. 35.6% who were drawn from private universities and 64.4% from public universities respectively. 18.6% of the respondents were first years, 33.3% second years while 21.0% and 27.0% were third- and fourth-years nursing students respectively. The study found out from previous studies that, subjects' characteristics such as age and level of education significantly influenced utilization of blended approach of teaching and learning, different age and level of study influenced the need of applying different approaches that had been suggested as applicable when addressing the differing learning styles and needs of students (Bloomfield, While & Roberts, 2008),

According to Kashorda and Waema (2014) in their e-Readiness Survey of Kenyan Universities (2013) Report, the networked PCs available per 100 student's ratios was 3.8 in Kenyan universities, which was considered quite low. This explains the response of respondents when asked whether they were anxious in learning through internet platform. 3.1% (15) strongly agreed that they were anxious, majority were 83.3% (405) who agreed, while 5.6% (27) were neutral, with 8.0% (39) disagreed that they were anxious to perform learning through internet platform and none of the respondents strongly disagreed but a turnover in the responses was seen during the posttest with 1/340 (0.29%) participants strongly agreeing, 33/340 (9.71%) agree, 43/340 (12.65%) were neutral, while 143/340 (42.05%) disagreed that they had experienced anxiety prior to undertaking a course via elearning. This shows that the Blended learning and teaching had been accepted by the intervention group. This was evident by the posttest group posing and improved mean of 2.265.

Tarus et al., (2014), Isabirye&Waema(2014), Oroma&Mduma, (2013) and Tashabala et al., (2014) noted that the uptake of ICT-based course delivery including technical, financial, human and institutional aspects by students explaining 61.1% of the respondents disagreeing in their capability to interact with the, majority 64.8% of the respondents showed readiness to participate in e-learning activities this is because of the many students today in the world and in Kenya who are still attempting to adjust their family social life, job and university life towards having more flexibility in their learning programs. This even increases during the posttest results to 88.52% of the respondents agreeing to uptake of ICT services during the learning endeavors. Tarus et al., (Taurus, Gichoya, & Muumbo, 2015), in addition, the Universities student's enrolment worldwide in nursing program has increased due to high market driven demand (Graf, S. (2007).

62.1% of participants had the motivation to learn and use eLearning platform this had been highlighted by a study done by Gilbert et al (2001), in the developing countries many of students have expressed an interest to implement e-learning but face obstacle in infrastructure resources and information access. 79.4% Disagreed that they have high level of self confidence in using eLearning platform studies have shown that due to increased Universities student's enrolment worldwide in nursing program due to high market driven demand (Graf, 2007). during the post intervention phase 88.52% agreed. with the group posing a t-value of  $t=-4.141$ ,  $df=971$ ,  $p=0.001$ . The infrastructure has overstretched both classrooms and in the clinical placement that it cannot adequately accommodate students thus many young optimistic persons are left untrained thus reduced self confidence in even utilization of eLearning platforms (Oruma. and Mduma, 2013). 62.1% of participants during the pre-intervention phase were not satisfied with time, place of the eLearning platform, this is further shown by the e-readiness survey of 2013 report which pointed out that although all universities are interconnected to the national fiber backbone network, the problems still was that universities were not investing sufficiently in their internal campus backbone and wireless network infrastructure that which make it easier for students to use their own laptops and smartphones on campus to access learning materials and other student services. Equally, apart from the low PC ratio, the students considered the campus networks slow and unstable leading to dissatisfaction on their internet platforms (Kashorda, & Waema, 2014). This observation changed during the posttest where 53% (187) Disagreed, followed by 25% (87) on neutral while a minority of 3% (9) reported to strongly agree that they were satisfied with time, place of the e-learning platform. On ANOVA the means had a  $F=4.185$   $sig=0.015$  with a mean difference of 4.107. its evident that the students were more comfortable and ready to engage in eLearning at the specified place.

. believed that the Moodle was Many students had expressed an interest to adopting e-Learning but faced obstacle with regard to infrastructure resources and information access of their respective universities such as bandwidth technology and connectivity instructor's design and technology confidence (Hussein, et al., 2007) this explains why the majority 60.7% of the respondents disagreed that there was information credibility in eLearning platform. Majority of the respondents 52.5% disagreed that the Module interface was clear and simple to use due to the combination of self-paced learning without a facilitator support which keeps the learners feeling isolated, Folorunso et al., (2006) Many students 50% believed that the Moodle was clear and easy to use in the post test while majority had answered contrary during the pre-intervention phase. 65.4% disagreed that Information and Technology services in their university was reliable and secure this is despite the improvement in the recent years of the availability of electronic communications equipment and the accessibility of the internet in the world and Kenya, in particular (2006). During the preintervention 70.0% disagreed that the screen layout and design of Module is appropriate for use this may be influenced by Technical, Financial, human and institutional aspects as noted in a review of literatures studies by Tarus et al., (2015), Isabirye&Waema(2014), Oroma&Mduma, (2013a) and Tashabala et al., (2014).

In 2013 in Tanzania a survey study conducted by Joel S. Mtebe and Christina Raphael revealed that invasiveness on personal time meant that some participants felt that blended learning was an overwhelming and tiring experience while some participants commented that the internet connectivity was an issue. This was particularly the case in geographical areas where there was a slow dial-up network connection, this explains the majority of respondents 82.7% agreed that they were Disconnected during online learning further explaining why 72.8% showed their dissatisfaction with the browsing speed of their internet and 75.1% experience problems when navigating module platform.

## V. Recommendation

The study showed that, participants in the selected study sites utilized blended teaching and learning approach mode minimally as evidenced by high levels of disagreement in the multivariable that were tested to include. The posttest results indicated that the majority of the respondents had acquired the skills and their engagement levels had improved significantly. Although this is observed there's need to put More emphasis during sensitization to further reduce student's anxiety and increase to a higher level the engagement and utilization.

More Benchmarking and adequate training should be organized for students to increase the exposure on use of eLearning. Multiorganization support is required in order to facilitate installation of infrastructure in the university. This will help to reduce the Difficultness in use of ICT which is also related to luck of accessibility of the ICT hardware during their training period. This can be addressed through university collaboration with ICT companies to ensure students have required facilities for eLearning. Internal quality survey to be reviewed and adopted with regard to identifying the existing gaps that ought to be addressed immediately

## VI. Limitations

The outcome of this study is limited in its generalizability and needs to be validated in other settings. This study does not consider university rankings and economic statuses in its realization of application of blended approach learning in Nursing.

## VII. Conclusion

There is utilization of blended teaching and learning mode among universities offering Bachelor of Science in Nursing in Kenya but not fully utilized as shown in the above and similar studies in the world. Although Lecturers are well educated and capable of using the eLearning platform to conduct teaching and evaluation to the students but there is reluctance to engage in eLearning.

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