Identifying Critical Success Factors for Blended Approach Mode in Teaching and Learning for Undergraduate Nurses in Kenya

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Abstract:-

Background: Critical success factor (CSF) appeared in the literature in the 1980s when there was interest in why some organizations seemed to be more successful than others. Blendedlearning approach refers to a combination of online and face to face methods in response to learner need and for the achievement of instructional objectives. A macro perspective suggested some critical success factors that can assist faculty and universities in e-learning environment development. Some e-learning CSFs included intellectual property, the suitability of the course for e-learning environment, building the e-learning course, e-learning course content, e-learning course maintenance, e-learning platform, and measuring the success of an e-learning course. In order to match this expectation, there's a need to investigate and address the CSFs that influence the implementation of blended approach teaching and learning of undergraduate nursing. Blending represents a fundamental change in the way teachers and students approach the teaching-learning experience. adoption.

Purpose: The study aimed at the success-critical factors of blended approach mode in teaching and learning in Kenyan universities during the pre-intervention phase of the study.

Methodology: This study applied a mixed design method in order to obtained detailed information from the study participants of interest to the researcher. The study involved conducting teaching and managing one fourth-year course "NRSG 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 universities. 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 were collected by the use of, 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. Of the total respondents, 30% of them Disagreed that they had knowledge on how eLearning via Moodle works while 46.3% were ready to integrate e-learning into their study. On whether they had acquired competence in access and use of e-Learning materials that had been prepared and posted on the university website by their respective lecturers 50 % of the population remained neutral.The fourth question which was whether students preferred e-learning to face to face learning as a method of learning 75% of the population was on neural.

Recommendations: infrastructural support is important for the application and success of the blended mode of teaching and learning. This is among the highest scored critical factors which respondents acknowledged that should be in place for the success of the system. It's imperative to note that institutions should invest in their infrastructure to provide a conducive environment for the application of blended mode of teaching and learning.

Conclusion: There are a number of critical factors of blended teaching and learning mode among universities offering Bachelor of Science in Nursing in Kenya but not fully addressed by the university management as shown in the above and similar studies in the world.

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

I. INTRODUCTION

The term Critical success factor (CSF) appeared in the literature in the 1980s when there was interest in why some organizations seemed to be more successful than others, and research was carried out to investigate the success components Ingram et al., (2007). CSFs are "those things that must be done if a company is to be successful" according to (Freund, 2005). CSFs should be few in number, measurable and controllable. Although there is a large number of a research article on e-learning, few of them address the most important issue of e-learning critical success factors. Papp (2009) explored distance learning from a macro perspective and suggested some critical success factors that can assist faculty and universities in e-learning environment development. Papp's e-learning CSFs included intellectual property, the suitability of the course for e-learning environment, building the e-learning course, e-learning course

content, e-learning course maintenance, e-learning platform, and measuring the success of an e-learning course. Papp, (2009) suggested studying each one of these CSFs in isolation and also as a composite to determine which factor(s) influence and impact e-learning success. Benigno and Trentin (2007) suggested a framework for the evaluation of e-learning based courses, focusing on two aspects: the first is evaluating the learning, and the second is evaluating the students' performance. They considered factors such as student characteristics, student-student interaction, effective support, learning materials, learning environment, and information technology.

Volery & Lord (2011) drew upon the results of a survey conducted amongst 47 students enrolled in an e-learning based one management course at an Australian university. They identify three CSFs in e-learning: technology (ease of access and navigation, interface design and level of interaction); instructor (attitudes towards students, instructor technical competence and classroom interaction); and previous use of technology from a student's perspective. Soong, Chan, Chua, and Loh (2001) using a multiple case study that the e-learning CSFs are: human factors, technical competency of both instructor and students, e-learning mindset of both instructor and student, the level of collaboration, and perceived information technology infrastructure. They recommended that all these factors should be considered in a holistic fashion by e-learning adopters. According to studies conducted by Dillon and Guawardena (2010) and Leidner and Jarvenpaa (2012), three main variables affect the effectiveness of e-learning environments: technology, instructor characteristics, and student characteristics. Using a survey on the perception of e-learning among postgraduates enrolled at Curtin Business School, Helmi (2008) concluded that the three driving forces to e-learning are information technology, market demands, and education brokers such as universities.

In an attempt to provide a pedagogical foundation as a prerequisite for successful e-learning implementation, Govindasamy (2007) discussed seven e-learning quality benchmarks namely, institutional support, course development, teaching and learning, course structure, student support, faculty support, and evaluation and assessment.

Based on a comprehensive study by Baylor and Ritchie (2009), the impact of seven independent factors related to educational technology (planning, leadership, curriculum alignment, professional development, technology use, instructor openness to change, and instructor computer use outside school) on dependent measures (instructor's technology competency, instructor's technology integration, instructor morale, impact on student content acquisition, and higher order thinking skills acquisition) were studied using stepwise regression. The study resulted in models explaining each of the dependent measures.

The purpose of e-learning, like any other learning approach, is to achieve the learning objectives as noted by Bourne et al., (2010). The objectives attainment measures can be environmental, technological, student related, and instructor related. In e-learning, some of the crucial CSFs are technological, such as bandwidth, hardware reliability, and network security and accessibility. Another e-learning CSF is student engagement in learning models. E-learning models are synchronous (real-time), asynchronous (anytime and anywhere), or a mix of the two. There are numerous tools that instructors can use to adopt an e-learning model: mini-lectures, electronic/conventional discussion, active/cooperative learning, and many others. The third e-learning CSF is student related. Students must be motivated and committed. In e-learning based courses, students take responsibility for their learning pace.

E-learning CSFs within a university environment can be grouped into four categories: (1)

Instructor; (2) student; (3) information technology; and (4) university support. As for all educational endeavor, the instructor plays a central role in the effectiveness and success of e-learning based courses. Willis (2009) and Collis (2010) believed that it is not the information technology but the instructional implementation of the IT that determines the effectiveness of e-learning. Webster and Hackley (1997) proposed three instructor characteristics that affect e-learning success: (1) IT competency; (2) teaching style; and (3) attitude and mindset. Volery and Lord (2011) suggested that instructors provide various forms of office hours and contact methods with students. Instructors should adopt an interactive teaching style, encourage student-student interaction. It is so important that instructors have good control over IT and is capable of performing basic troubleshooting tasks.

University students are becoming more diverse and demand for e-learning based courses. Students need to have time management, discipline in order to benefit from internet-based learning. (Papp, 2009; Volery & Lord, 2011). E-learning has been and will be adopted by many higher education institutions. Consequently, several adoption-related critical factors must be carefully evaluated before, during, and after an adoption. The adoption of e-learning technology is a complicated process of establishing and developing an integrated information technology system as argued by Willis (2009), and Collis (2011).

II. METHODOLOGY

This study to identify critical factors in 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 include; 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 the school of nursing. Purposive sampling was used in identifying fourth-year nursing students. Students were selected randomly by the aid of a random table enabling minimization of biases in the selection of study participants as noted by Rose, (2007). A sample of 486 participants was 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 the 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. A research permit was obtained from, NACOSTI-Kenya, ERC of the selected university study sites of the universities involved in the study. Information sheet, the consent form was also provided and filled by the study participants before the commencement of data collection. In addition, anonymity and confidentiality were assured. A 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 the 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.

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. The 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 shows the demographic characteristics of the study subjects.

Among other demographics, the respondents were required to answer which category of the university they came from. The target subjects were sampled from public and private universities 64.4% of the respondents came from the 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%

The respondents were asked questions in order to determine the critical factors of Blended Approach Mode in Teaching and Learning for Undergraduate Nurses in Kenya. A myriad of questions was asked to identify the critical factors. Among the questions asked, respondents were supposed to answer whether they had knowledge of how eLearning via Moodle works. During pre-intervention 37% (181) Agreed, 30% (144) Disagreed, 20% (98) were neutral while 11% (53) strongly agree and 2% (10) strongly disagreed. The control group had a majority of the respondents 47% (63) Disagree, 29% (38) and 23% (31) Neutral and Agree respectively.

The second question asked was whether students were ready to integrate e-learning into their study. During pre-intervention 6.6% of the respondents Strongly Agreed, 10.9% Agreed 46.3% and 32.3% Disagreed and strongly disagreed with 3.9% on Neutral. The third question that BSc Nursing students selected in the study were asked was whether they had acquired competence in access and use of e-Learning materials that had been prepared and posted in the university website by their respective lecturers. During pre-intervention phase, n= 24 (5%) study participants strongly agreed, n= 82 (17%) participants agreed, n= 91 (19%) participants remained neutral, n= 244 (50 %) participants disagreed that they had acquired competence on how to access and use the eLearning materials. The fourth question which was whether students preferred e-learning to face to face learning as a method of learning. Duringthe pre-intervention phase, study participants were asked to make a determination on which mode of teaching and learning they had preferred; that is between eLearning against face to face mode. n=28 (6%) participants stated strong agreed, n=42 (9%) agreed, n=50 (10%) were neutral, n= 360 (75%) were neutral. The fifth question asked was on how often the respondents use the computer in their study. The Sixth question was on whether the respondents could discipline themselves to follow e-learning courses in the

Moodle The respond were n=172 (35%) agreed, n=33 (7%) were neutral, n=272 (56%) disagreed. The seventh question asked was whether the respondents would choose Blended over face to face methods of teaching In regard to the choice of blended mode of teaching and learning as an alternative method of instructions in higher education. Study results in figure 5.X, Show that, during the pre-intervention phase, n=57 (12%) of study participants stated agreed, n=351 (72%) were neutral, and n=78 (16%) disagreed. The eighth questions investigated whether the Faculty/Department had enough computers for students use. Study participants were asked to report about the status of their school/department internet connectivity status. During pre-intervention phase, n= 18 (4%) stated that neutral response, n=20 (4%) stated agreed, n=447 (92%) participants disagreed. The ninth question used by the researcher sought to find out the computers in the faculty/ department whether they were fast enough to run the software installed for Moodle learning. The respondent's answered that during pre-test 29.8% and 25.1% Strongly Disagreed and Disagreed respectively followed by 21.0% who agreed and 11.9% and 12.1% who Strongly Agreed and On neutral Respectively. The tenth question raised by the researcher was whether the university network is fast enough to access the learning materials. 9.5% of the respondents Strongly Agree, 19.3% Agree 25.9% are on Neutral while 24.7% and 20.6% were on Strongly Disagreed and Disagreed respectively. The control group registered 52.6% on Neutral, 20.3% Agree 15.0% Strongly Agree while 9.8% and 2.3% strongly agreed and Disagreed Respectively. The eleventh question asked by the researcher was whether the respondents had a laptop/computer, notepad, smartphone for use in the Moodle. During pre-intervention phase, n=246 (51%) agreed, and n= 231 (48%) disagreed. In the post-intervention phase, n= 36 (27%) participants of the control group agreed and 92 (69%) disagreed. From the experimental group n= (201) 56.94% of participants agreed and n=142 (40.23%) disagreed to have owned, computer/laptop, notepad, smartphone for their daily use. The twelfth question during the pre-intervention phase, participants were asked if their respective institutions were having good information and technology infrastructure maintained in order to facilitate the process of teaching and learning, n=67 (14%) remained neutral, n=414 (89%) disagreed, meaning that their respective institution had not been maintaining the IT, infrastructure. The Thirteenth question asked was the IT infrastructure could support eLearning well in my university. During the post-intervention, data in figure 5.X show that n=102 (21%) participants agreed, n=35 (7%) were neutral, n=348 (72%) disagreed. While during post inter-intervention phase, the control group had n= 41 (31%) participants who agreed, n= 35 (26%) were neutral, and n= 57 (43%) disagreed. In the experimental group, n=108 (30.59%) agreed, n= 35 were neutral (9.29 %) and n=208 (58.92%) disagreed that the ICT department was working had to support e-Learning model.

IV. DISCUSSION

This study was conducted on nursing undergraduate students currently registered in the selected universities of study to find out the critical factors 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, the 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% 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-year 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 different 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 had knowledge of how eLearning via Moodle works. During pre-intervention, 37% (181) Agreed on whether students were ready to integrate e-learning into their study. During pre-intervention 46.3%Disagreed this coincides with astudy done by Soong, Chan, Chua, and Loh (2001). The third question that BSc Nursing students selected in the study were asked was whether they had acquired competence in access and use of e-Learning materials that had been prepared and posted in the university website by their respective lecturers. Majority of the respondents (50%)disagreed that they had acquired competence on how to access and use the eLearning materials. whether students preferred e-learning to face to face learning as a method of learning 75% were neutralwhen asked how often the respondents use the computer in their study 56%of the respondents disagreed. This data is backed up by studies conducted by Dillon and Guawardena (2010) and Leidner and Jarvenpaa (2012) stating that the three main variables affecting the effectiveness of e-learning environments are technology, instructor characteristics, and student characteristics.The seventh question asked was whether the respondents would choose Blended over face to face methods of teaching In regard to the choice of blended mode of teaching and learning as an alternative method of instructions in higher education72% were neutral. Study participants were asked to report about the status of their school/department internet connectivity status 92% of the participants disagreed this explains 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.

The ninth question used by the researcher sought to find out the computers in the faculty/ department whether they were fast enough to run the software installed for Moodle learning. The respondent's 29.8% stronglydisagreed. The tenth question raised by the researcher was whether the university network is fast enough to access the learning materials 25.9% are on Neutral this explains that the overstretched infrastructure is one of the key factors that have hindered the use of blended learning mode (Oroma. &Mduma, 2013). The eleventh question asked by the researcher was whether the respondents had a laptop/computer, notepad, smartphone for use in the Moodle 48% disagreed. The twelfth question during the pre-intervention phase, participants were asked if their respective institution's was having good information and technology infrastructure maintained in order to facilitate the process of teaching and learning 89% disagreed this shows thatInfrastructure 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 (Oroma. and Mduma, 2013). The Thirteenth question asked was the IT infrastructure could support eLearning well in my university 72% disagreed meaning that their respective institution had not been maintaining the IT, infrastructure.

V. RECOMMENDATION

The study showed tha participants in the selected study sites were able to identify the key critical factors that are required for the successful implementation of the blended learning and teaching method. This is clearly that Critical success factor (CSF) appeared in the literature in the 1980s when there was interest in why some organizations seemed to be more successful than others (Ingram et al., 2007). This being a baseline survey of the experimental study underscores the need to implement and apply blended teaching and learning approach mode minimally as evidenced by high levels of disagreement and neural responses in the multivariable that were tested. Its keys to note that, infrastructural support is important for the application and success of the blended mode of teaching and learning. This is among the highest scored critical factors which respondents acknowledged that should be in place for the success of the system. It's imperative to note that institutions should invest in their infrastructure to provide a conducive environment for the application of blended mode of teaching and learning. Multiorganization support is required in order to facilitate the installation of infrastructure in the university.

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 are several critical success factors needed for the successful application and 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.

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