Effect of Blended Learning on the Academic Performance of Learners in National Examinations in TVET Institutions in Nairobi, Kenya

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Abstract

Blended learning was implemented for the first time in TVET institutions in Kenya in 2020 following the closure of all learning institutions due to the Covid-19 pandemic. TVET institutions had traditionally trained learners using face to face approach. The transition from face to face learning to blended learning approach in TVET institutions in Kenya took learners and trainers by surprise. The study sought to establish the effect of blended learning on the academic performance of learners in Kenya National Examination Council (KNEC) exams in TVET institutions in Nairobi, Kenya. The study adopted a descriptive research design. The target population was TVET Kenya. A table was used to collect secondary information on the academic performance of learners in KNEC exams in the TVET institutions in Nairobi, Kenya. Tables and graphs were used to represent the analyzed data. The study revealed that there was no significant decrease in the average academic performance of learners in KNEC exams in 2020 when blended learning was implemented in TVET institutions in Nairobi, Kenya. However, the percentage of learners who had course requirement not met significantly increased in 2020 compared to other years. The study concluded that even if the learners and trainers had challenges using the blended learning approach, they made rigorous efforts and had the right attitude which made the academic performance of learners in KNEC exams not to decline significantly in 2020. The study recommended that learners and trainers should be trained on blended learning approach for its effective utilization. In addition the government should support blended learning in TVET institutions in Kenya through funding. Further, policy makers should consider the characteristics of the learners and trainers so as to reduce the barriers to successful implementation of blended learning by applying different strategies to each category of adopters.

Key words: *Blended Learning, Academic Performance, KNEC Exams*

Introduction

The COVID-19 pandemic and resulting social distancing measures and lockdowns, have greatly impacted the provision of education in Technical and Vocational Education and Training (TVET) institutions in Kenya.

It led to the change in learning approaches in TVET institutions in Kenya from face to face to blended learning to ensure continuity in learning. Blended learning is an innovative concept that embraces the advantages of both traditional face to face learning and ICT supported learning. It has scope for collaborative learning, constructive learning and computer assisted learning. Blended learning requires rigorous efforts, right attitude, sufficient funding and highly motivated trainers and learners for its successful implementation (Lalima & Dangwal, 2017).

Statement of the Problem

Learning in TVET institutions in Kenya has traditionally been done using the face to face approach. However, the onset of COVID-19 pandemic made face to face learning not practicable as social-distancing was required so as to curb the spread of the COVID-19 virus. The ministry of education recommended blended learning in tertiary institutions in Kenya so as to ensure continuity in learning. Feasibility study on this mode of learning in TVET Institutions in Kenya was not done before full implementation neither were the trainers and learners adequately trained and prepared to use this approach. It was assumed that the learners and trainers had access to internet connectivity and the necessary hardware to enable them access on-line lessons. This posed a challenge in the delivery by trainers and the uptake of blended learning by learners. A study by Lalima & Dangwal (2017) noted that blended learning is not easy and require certain fundamental preparations in all the elements of teaching- learning process, for the trainers and learners, content design and infrastructure. A study by Yates, Brindley-Richards & Thistoll (2018) indicated that web-based e-Learning is absent in TVET institutions. Based on the circumstances where Kenya could no longer continue offering training in tertiary institutions using purely face to face approach and with no prior experience of blended learning, there was need to evaluate the effect of blended learning on the academic performance of learners in TVET institutions in Kenya.

Objective of the Study

The general objective of the study was to analyze the effect of blended learning on the academic performance of learners in TVET institutions in Kenya. Specifically, the study analyzed the effect of blended learning on the academic performance of learners in KNEC exams at Technical institutions in Nairobi, Kenya.

Literature Review

The literature review incorporated the theoretical review, conceptual framework and the empirical review.

Theoretical Review

The study was guided by Diffusion of Innovation Theory that was developed by E.M. Rogers in 1962. The theory explains how an innovation gains momentum and diffuses or spreads through a specific population or social system resulting in the adoption of the innovation. When promoting an innovation to a target population, one need to take into consideration the characteristics of the target population that will help or hinder adoption of the innovation. There are five established adopter categories, namely; Innovators, early adopters, early majority and laggards as represented in figure 1 below. Innovators are first to try the innovation while early adopters embrace change and are aware of the need to change. Early Majority need to see evidence that the innovation works before they are willing to adopt it while late majority are skeptical of change, and will only adopt an innovation after it has been tried by the majority. Laggards on the other hand are bound by tradition and are very conservative and skeptical of change. Hence, when promoting an innovation, one should use different strategies to appeal to the different adopter categories (Sahin, 2006).
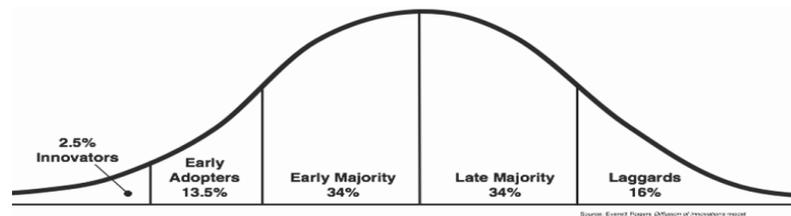
Figure 1: Adopter Categorization on the Basis of Innovativeness

Source: Diffusion of Innovations, fifth edition by Everett M. Rogers. Copyright (c) 2003 by The Free Press. Reprinted with permission of the Free Press: A Division of Simon & Schuster.

Factors that influence adoption of an innovation include; Relative advantage of the inno- vation over what it replaces; compatibility of the innovation with the values, experiences, and needs of the potential adopters; complexity of use of the innovation; triability of the innovation before a commitment to adopt is made; observability of results after the inno- vation is adopted. Rogers' diffusion of innovations theory is the most appropriate for investigating the adoption of technology in higher education and educational environ- ments (Medlin, 2001).

Conceptual Framework

This study was on the effect of blended learning on the academic performance of learners in TVET institutions in Nairobi, Kenya as demonstrated in the conceptual framework below.

Independent Variable   Dependent Variable
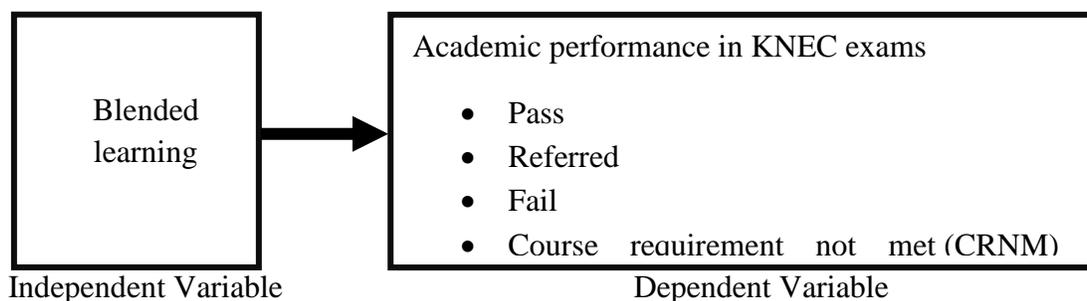
Empirical Review

With the spread of COVID-19, education and training institutions around the world have moved towards online instruction to ensure the continuity of learning. Combining face to face and online learning approaches can produce greater positive impacts than instruction using just one of these delivery modes. Blended learning provides variety of experiences to the students, make them active and focused on the teaching - learning process due to increased involvement. The learners bear the responsibility of their learning thus making them more disciplined (Hondonga, Chinengundu & Maphosa, 2021). A study conducted in Sri Lanka revealed that the pandemic had posed significant challenges to education in TVET institutions as instructors and students were struggling with online learning, which was introduced abruptly under the new norm of social distancing. TVET institutions experienced a significant challenge of providing hands-on practical training using tools and machines through online training. It was further noted that only one in five households owned either a desktop or laptop in Sri Lanka. The study recommended that further policy planning and implementation was needed to address the challenges experienced during the COVID-19 pandemic (ADB Briefs No. 168 March, 2021). A study by Raihan & Han (2013) revealed that E-Learning is still new model in developing countries unlike in the developed countries where the teaching-learning phenomena had changed from Brick to Click approaches (e-Learning). It was further noted that E-Learning is absent in the TVET system which in turn deprive learner the benefit of Web-based e-Leaning. According to Neal (2011), TVET systems involve a wide range of target markets and different delivery models and hence, they are more complex than higher education systems. Transition to an online environment poses special challenges in the delivery of TVET courses, which involve the development of hands-on skills as well as theoretical learning. The transition poses further challenges for developing countries in terms of the preparedness of training systems and the availability of digital technologies for online teaching. A study by Cara & Chatani (2019) identified the advantages of E-learning as follows; it allows a large and varied number of learners, including people who for various circumstances do not have access to traditional learning and training, to access new knowledge and skills. Further, learners can learn at anytime and anywhere provided they have access to the internet.

It lowers tuition fees, delivery costs of TVET institutions and eliminates commuting cost for learners. The limitations of E-learning include: it requires self-discipline to follow online learning courses; limited peer-learning effects; feeling of isolation; internet access speed and cost and sometimes high initial costs. A study by Brolpito, Lightfoot, Radišić & Šćepanović (2016) in Serbia recommended that all teachers should receive appropriate support and guidance for developing their own digital skills. In implementing the blended learning approach, the diverse needs and abilities of the students needed to be considered as they pose a challenge for student engagement and retention (Yates, Brindley-Richards & Thistoll, 2018).

In terms of infrastructure, most TVET institutions did not have e-learning platforms in place. Further, most trainers were ill-prepared and lacked necessary training in using the online platforms to train. The results also revealed that many students encountered challenges to engaging in e-learning owing to lack of internet connectivity, lack of a computer or laptop, and inadequate training in the use of their college's online learning platform. The study recommended that the government of Botswana to support the transition to online teaching of TVET courses. Online learning has in some cases improved access and enrolment opportunities due to its affordability and flexibility compared to face to face mode of learning (Gannon, 2020). However, despite concerted efforts, the integration of online technologies in the delivery of TVET has not been realized in many countries and TVET institutions (UNESCO, 2020). For many learners, the COVID-19 outbreak has not only posed a health threat, but also delayed their completion of studies and transition to employment (WHO, 2020). Areba (2020) further noted that the interruption of learning processes due to school closure increased anxiety and uncertainty regarding national examinations. It also reduced access to digital learning platforms due to lack of devices and internet connectivity at home which negatively affected learners' learning outcomes.

Methodology

The study adopted a descriptive and quantitative research design. The target population of the study was the TVET Institutions in Nairobi, Kenya. All TVET institutions in Nairobi, Kenya were studied. Secondary data on the academic performance of learners in KNEC exams was collected using a table and was categorized into business and technical exams for the period 2018-2020 and the average performance was computed. The average academic performance was summarized in a table and presented in a graph and conclusions drawn.

Findings

The study analyzed the academic performance of learners in KNEC exams in TVET institutions in Nairobi, Kenya namely, Nairobi Technical Training Institute, Kabete National Polytechnic and Kinyanjui Technical Institute. The average academic performance in KNEC exam

for TVET institutions in Nairobi, Kenya is as summarized and presented in table 1 and figure 1 below respectively.

Table 1

Average Academic Performance of Learners in KNEC Exams in TVET Institutions in Nairobi, Kenya

| Year	% Pass		% Fail		% Referred		% Course requirement not Met (CRNM)	
	Business	Technical	Business	Technical	Business	Technical	Business	Technical
2018	65	49	3	11	25	39	4	3
2019	57	47	7	18	32	32	5	3
2020	52	43	11	17	23	32	15	10
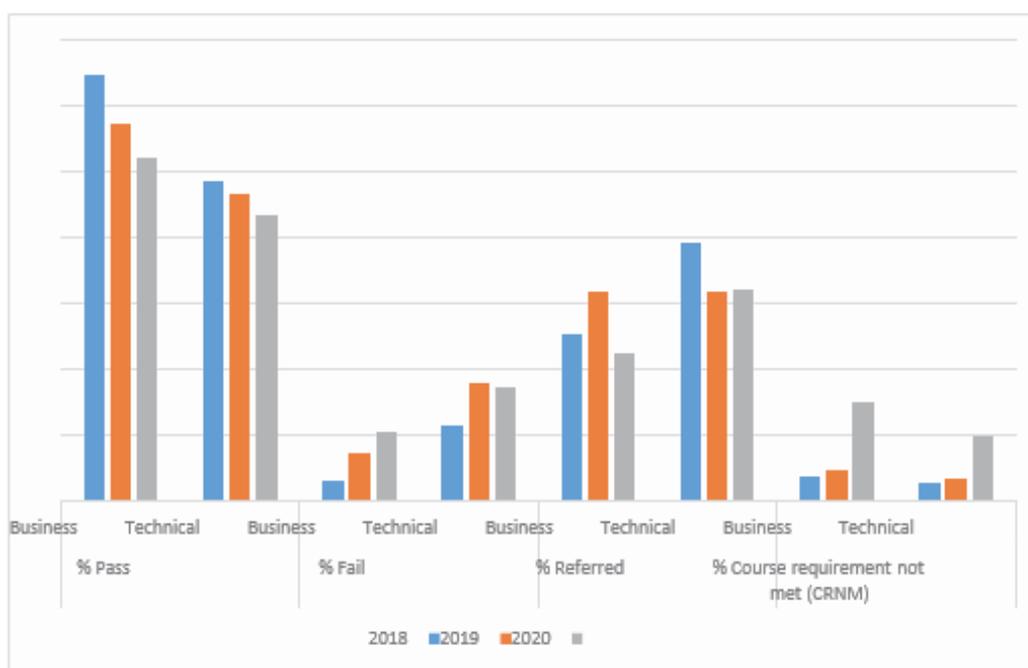
Figure 2: Average academic Performance of Learners in KNEC Exams in TVET Institutions in Nairobi, Kenya

Over the years under consideration, the percentage pass in KNEC exam declined over the years and was higher in business exams compared to technical exams. In addition, more students failed and were referred in technical exams compared to

business exams. It was also evident that more learners in business exams failed to meet the course requirements compared to the technical exams. Further, there was a significant increase in the percentage of learners who failed to meet the course requirement in KNEC exams in 2020 in both business and technical exams. However, the percentage of students who were referred declined in 2020 business exams.

Conclusions

The study concluded that even if the learners and trainers had challenges using the blended learning approach, they made rigorous efforts and had the right attitude which made the implementation of the new learning approach successful. This made the average academic performance of learners in KNEC exams not to decline significantly in 2020. The findings supported the Diffusion of Innovation Theory that suggested that early adopters embrace change and are aware of the need for change. The study also concluded that blended learning negatively affected the completion rate of learners as there was a significant increase in the percentage of learners with course requirements not met. This agreed with the findings by (WHO, 2020).

Recommendations

Based on the findings, the study recommended the government to support the transition to blended learning of TVET institutions in Kenya through funding. The study further recommended that the policy on delivery of learning instructions and materials should be reviewed to reflect the changing times. Further, policy makers need to consider the characteristics of the learners and trainers so as to reduce the barriers to successful implementation of blended learning by applying different strategies to each category of adopters.

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