Reshaping Blended Learning to Accelerate Women's Progressive Education in Kenya. A Case Study of Kiriri Women's University of Science and Technology.

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ABSTRACT

Despite challenges experienced by the learners and instructors, blended learning has enabled distance learning and also complements the classroom learning experience for the students. The study sought to establish the effect of blended learning on women's progressive education. The predictor variables were: in-person, online learning, flexible learning and e-learning management systems while the independent variable is women's progressive education. The study adopted unified theory of acceptance and use of technology to support the researchers' views. The study adopted mixed method research design strengthened with pragmatism and constructivism as the appropriate research paradigm. The study also adopted client-centred approach to identify the study unit of observation. The study findings reveal that R-Squared is 0.9089, the Adjusted R-squared is 0.9039, F-statistic of 184.47 and a p-value of 0.0000. This implies that the model explains 90% of change in women's progressive education. In addition, this means that a combination of predictor variables: in-person, online, flexible learning and e-learning management systems, can predict 90 per cent change in women's progressive education. The study results also shows that there is statistically significant relationship between the study independent and dependent variables at 1% level of significance, with a p-value of 0.0000. The study recommends adoption of blended learning to accelerate women's progressive education. Institutions should adopt effective LMSs that are user friendly, accessible (both online and offline), considering digital inclusion and offering quality education for all. The lecturers/course instructors should upgrade and adopt innovative pedagogical approaches while taking into account the changing patterns in the world of work. The learners too should too should embrace technology in education.

Keywords: blended learning, in-person, online-learning, flexible-learning, e-LMSs, human capital base.

1.1 BACKGROUND OF THE STUDY

Women's human capital improves children's education which in the long run determines the well-being and success of the next generation workforce in the world. Therefore, reshaping blended learning is an option towards accelerating women's progressive education. Dewey the American founder of progressive education argued that it is based on the belief that students learn best by doing real-life activities or hands on learning with flexibility.

The researchers, Rasheed, Kamsin and Abdullah (2020) stated that blended learning is the mode of instruction most widely used by educational institutions owing to its evident effectiveness in offering flexible, timely, and continuous learning. This learning approach combines in-person teaching with online learning methods that integrate technology and digital media during the learning process, giving students more flexibility to customize their learning experiences. Herman (2018) had a similar view, and further defined blended learning as learning that aims to integrate traditional learning with technology, such as e-learning and mobile learning to create a new learning environment that enhances learning effectives and enriches the learning experience.

Blended learning has enabled distance learning and complements the classroom learning experience for lecturers and students. It is evident that technology has provided an important delivery channel that has enabled learning institutions to transform into e-learning environments and approaches. A study conducted by Chen and Yao (2016) revealed that students had positive perception about usefulness of the blended course, since it offered a variety of ways to assess students' learning. The blended mode provides fewer face to face lectures and more learning material processed in the electronic form with attractive features. However, lecturers also experience limited participation especially during the e-learning activities and sessions.

Rasheed *et.al.*, (2020), in their study argued that the main challenges faced by educational institutions is the provision of suitable instructional technology and effective training support to lecturers, while Bassett (2021) stated that transitioning to online delivery of teaching and learning raised existing equity concerns. For instance, Bassett (2021) argued that as the Universities adopts blended approach, the students who did not have access to adequate resources were confronted by digital divide, which worsened the existing inequality than before. The researcher also observed that some students could not do their exams and this will automatically lead to delay in completion. The study also concluded that that reliability, speed and affordability is a critical factor for a virtual academic experience and success.

1.2 Statement of the Problem

The outbreak of COVID -19 pandemic in 2020 had a major impact globally in all sectors of the economy. In response, higher learning institutions adopted online learning as an option and as the only solution that most educators had. This was a commendable and strategic move now that Kenya's internet penetration rate stood at 42.0 percent of the total population with 23.35 million internet users by 2022. While the global internet users have climbed to 4.95 billion by 2022 with internet penetration now standing at 62.5 percent of the world's total population (Kemp, 2022) adoption of blended learning can be helpful in reducing dropout rate.

According to Ayaz and Yanartas (2020), the unified acceptance model applied in e-learning explains the use and probability of success of technology by 70% among students. However, digital infrastructure remains a major challenge in Africa, in regard to the implementation of blended learning. Crosling (2017) also stated that students withdrawing from their studies before completion of their studies is costly to the higher education systems, to the students and to the society as a whole.

Studies have proved that well planned blended learning programs and availability of resources accelerates students' success and reduces attrition rate. In Kenya, a study conducted by Njoroge *et al*., in 2016 established students' attrition rate of 37 percent in private universities in Nairobi County. Despite the growing implementation of blended learning, Fadel, Yousif, & Mohammed (2016) in their study cited readiness of the lecturer and students to upskilling and upgrading their teaching and learning experience as one of the factors that can influence blended learning success and affect students' learning and satisfaction. Hence, higher learning institutions should lead in acceptance and adoption of technology and service delivery.

1.3 Specific Objective of the Study

To establish how blended learning accelerates women's progressive education at KWUST.

1.4 Research Question

How does blended learning accelerate women's progressive education at KWUST?

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

The study adapts the unified theory of acceptance. Venkatesh, Morris, Davis and Davis formulated the Theory of Acceptance and Use of Technology (UTAUT) model in 2003 to examine the adoption of digitization and blended learning techniques. The UTAUT model emphasizes that it is important to explain the acceptance and use of new technologies to better understand user-oriented and find solution (Ayaz and Yanartas, 2020). The model theorizes that four constructs play a significant role as direct determinants of user acceptance and usage behaviour: these includes performance expectancy; effort expectancy; social influence and facilitating conditions.

Saeed and nor (2021) whose study contributed in supporting UTAUT model, examined the direct and indirect effects of the four determinants of technology adoption on students' behavioural intention and actual use of e-learning in Higher Learning Institutions (HEIs) in the UAE. The study findings revealed that the four constructs positively influence students' behavioural intention to adopt e-learning. The study further revealed that the provision of the operational and technical resources including the required knowledge and skills needed to use a system successfully, does not directly translate into the actual use of the system especially if the resources are not specifically tailored to the age and previous experience of the students.

Mosweu (2016) cited in Ayaz and Yanartas (2020) in their study also examined the factors affecting the intent of the document workflow management systems of trade and industry in Botswana. The researchers found that performance expectancy, explains 16 percent of the variation in behavior intent to adopt DWMs while effort expectancy explains only 10 percent. Other factors such as gender, age, and experience also affect one's ability to use information technology. These determining factors directly affect intention to use information communication technology, and thus affects the success of blended learning. The model is applied in e-learning that explains the use of technology by 70 percent. It is also used to explain the probability of success (Ayaz and Yanartas, 2020).

The UTAUT model has some limitations with reference to this study. Figure 2.1 shows that behavioural intention is a key factor in blended learning, however, other factors such as self-efficacy and individuals' attitude can affect blended learning experience indirectly. Behavioural intention in this study implies the individual's internal belief that may not reflect the external environmental factors. The Unified Theory of acceptance model supports in-person, online learning, flexible learning and LMSs as the predictor variables and women's progressive education as dependent variable in this study. It is significant in this study because institution's need information systems that facilitate learning and management of generated documents, and during business processes on a digital platform.

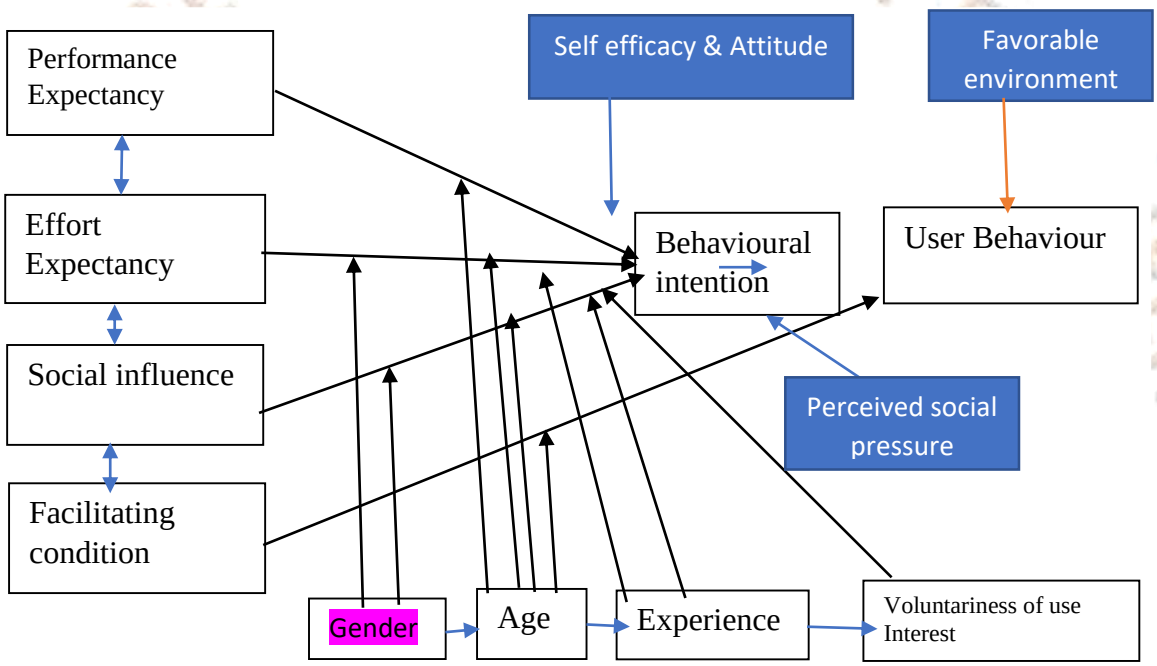

Figure 2.1: Unified Theory of Acceptance and Use of Technology (UTAUT) framework adopted from (Ayaz and Yanartas, 2020).

2.2 Empirical Review

2.2.1 Blended learning

Heryanto, Elisa, Datten, Eduard (2022). Conducted a study to determine the application of hybrid learning after the COVID 19 pandemic at Universitas quality. The study adopted descriptive research design. The study results show that with implementation of hybrid learning by dividing the study groups (50 percent in person and 50 percent online), students have succeeded in achieving learning objectives. The level of participation of students and lecturers in category learning increased, with the availability of supporting facilities for the learning systems.

Hassan and Shukri (2020) conducted a study to establish the effect of blended learning in enhancing female student's satisfaction in the Saudi Context. The study intended to investigate the effect of utilizing Learning Management System (LMSs), blackboard on enhancing English as a Foreign Language (EFL) female students' satisfaction the Saudi context. The study found that effectiveness of utilizing the supplementary materials on blackboard in leading up EFL student's satisfaction. The study concluded that blended learning stimulates, a classroom setting with activities that are carried out under flexible engagement manner.

Zhang, Chen, and Wang (2020). Factors influencing students' willingness to choose blended learning in higher education. The study adopted survey research design, where questionnaires were administered and a total of 1903 valid responses were collected. The study findings indicated that blended learning have not been widely offered in Chinese Universities due to limited students' participation and understanding of blended learning. Most students have positive attitude to blended learning and are willing to choose it in future. The study concluded that factors

such as demographic design, learning demands, curriculum recognition are factors contributing to the student's willingness to choose blended learning.

Herman, Gracia, Macniven, Clark, and Geraldine (2018) conducted a study to examine a blended learning model designed to support women returning to STEM after a career break and its delivery in unique partnership between an online distance education provider and a community-based equality organization. The study adopted mixed methods approach, and partnership activities such as networking events, returnships, career clinics, webinars and online Badged Open Course. Survey monkey online data collection tools was adopted. Quantitative technique of data analysis was used. The study concluded that blended learning approach needs to be flexible and adaptable to be able to incorporate the needs of different life-course stages, taking into consideration gender and other diversity characteristics.

Mugenyi, Chang and Kagambe (2017) in their study investigated the effectiveness of a blended learning environment through analysing the relationship between student characteristics/background, design features and learning outcomes. The survey was administered to 238 respondents to gather data on student characteristics/background, design features and learning outcomes. The final semester evaluation results were used as a measure for performance as an outcome. The study adopted online self-regulation learning questionnaire. Multiple regression analysis results showed that blended learning design features (technology quality, online tools and face-to-face support) and student characteristics (attitudes and self-regulation) predicted student satisfaction as an outcome. The study concluded that student characteristics/backgrounds and design features are significant predictors for student learning outcomes in blended learning.

Women's progressive education

Yamauchi and Tiongco(2013) conducted a study to establish why women are progressive in education. The study focused on the gender disparities in human capital, labour markets and family arrangements in Philippines. The study revealed mutually consistent evidence to support female advantage in education and disadvantage in labour markets observed in Philippine's. The researchers adopted the model of multiple Nash equilibria to explain schooling and labour market behaviours for females and males. The survey revealed that family arrangements to tighten commitment between daughters and parents keeps a high level of schooling interments in daughters. According the researchers, parents expect larger income shared from better-educated adult daughters, and that the above institutional arrangement is stronger among poor families.

2.3 Conceptual Framework

Blended learning

3.0 METHODOLOGY

The study adopted mixed method research design strengthened with pragmatism and constructivism as the appropriate research paradigm. Pragmatism as a research paradigm is an approach in research that can bridge the gap between the scientific methods and structural orientation of older approaches and naturalistic method and freewheeling orientation of newer approaches (Kaushik and Walsh 2019; Creswell and Creswell, 2020). The mixed method research design has been adopted since it is a holistic approach that involves discovery of issues through qualitative and quantitative data. The study focused on students as the key unit of observation, and lecturers since the researcher adopted a client and a learner-centered approach using a cross-sectional data.

The study unit of analysis is KWUST. The study target population comprised 408 continuing degree students in their final year, during September – December (2021) semester (KWUST workload, 2021). This produced a study sample size of 129 students. The study also targeted 60 lecturers who were teaching during the same period. This produced a study sample size of 24 lecturers. The choice of study unit of observation is consistent with that of

Hamdan and Amorri (2020), whose survey focused on 101 GEIL Students at the end of the first semester, Spring 2019/Fall 2020. A pilot test of 12(10%) of the sample size, was conducted and validity of the data collection instruments was established through researcher's expert opinion. The reliability results were all above 0.7. This implies that all the indicators correlate highly among themselves.

3.1 Calculation of sample size of the students to be interviewed.

The target population is 408 students. The estimate is within 2 per cent of the true value with 95 per cent confidence level. In this case, e(error margin) in this case is 0.02; level of significance is 0.05 %; Z-tabulated value is 1.96.

N = 408

e = .02 (since the estimate should be within 2% of true value);

z = 1.96 (as per table of area under normal curve for the given confidence level of 95%).

Assume p to be p = .02

$$\frac{(1.96)^2(0.02)(1-0.02)(408)}{(0.02)^2(408-1)+(1.96)^2(0.02)(1-0.02)} = \mathbf{129} \text{ students} \quad \ldots\ldots 3.1$$

$$\frac{(1.96)^2(0.02)(1-0.02)(60)}{(0.02)^2(60-1)+(1.96)^2(0.02)(1-0.02)} = 26 \text{ lectures} \quad \ldots\ldots 3.2$$

The study adopted triangulation in sampling design, where stratified sampling, purposive and simple random sampling was conducted. This is in line with the adoption of mixed research design. Equal representation of the study population has been taken into consideration.

Table 3.1 Sampling frame

The students are the key units of observation in this study.

Type of Respondents	Target population	Sample size
Lecturers	60	26
Students	408	129

4.0 FINDINGS, ANALYSIS AND DISCUSSIONS

4.1 Response Rate

The study attained response rate of 81(63%) among students and 24(92%) among the lecturers interviewed. The study response rate attained is adequate. The study findings are consistent with that of Hamdan and Amorri (2020), who had a target group of 101 students and only 87 respondents. This translates to 87% response rate. The findings concur with the recommendation of American Association for Public Opinion Research (AAPOR) report of 2015, which stated that the average and also reasonably acceptable response rate is 60% ±20 that can be used to generalize the characteristics of the study problem as expressed by opinions of the respondents in target populations. (Odhong, 2018).

The study adopted appropriate measures to obtain a significant and meaningful response rate, by ensuring familiarity with the organization and identifying the right target population before the data collection. The researcher also considered extending the data collection period to January – April (2022) semester to provide the respondents and the researcher with sufficient time and to increase the response rate. The choice of the period study concurs with that of Katy, *et al.*, (2021) who conducted a study to examine online retention research in higher education between (January 2015 – March 2019). Mugeiny *et al.*, (2017) also used the final semester evaluation results to measure the outcome.

4.2 Demographic Statistics

4.1.1 Age bracket

The study results shows that 69(88.46%) of the students are aged between 18 – 24 years, 8(10.26%) of the students aged between 25 – 31 years and only one (1%), is aged between 32 – 44 years. Mugenyi *et al.*, (2017) in their study found that 67% of the students were aged 31-39, while 62% were aged between 20 – 30. The above data implies that KWUST attract young female students who have accelerated fairly well from primary to secondary school to university level. Figure 4.1 shows the age of the students. The age set presented reveals that the students can easily adopt technology. Age is a key factor when considering technology adoption as explained and supported by the Unified Theory of Acceptance and Use of Technology. According to the theory, older persons tend to be slower than younger adults to adopt new technologies. Therefore, understanding age-related differences can provide guidance for the deployment of new technologies that may be beneficial to students and lecturers in terms of learning, social interaction and cognitive engagement (Rogers, Mitzner, Boot, Charness, Czaja and Sharit, 2017).

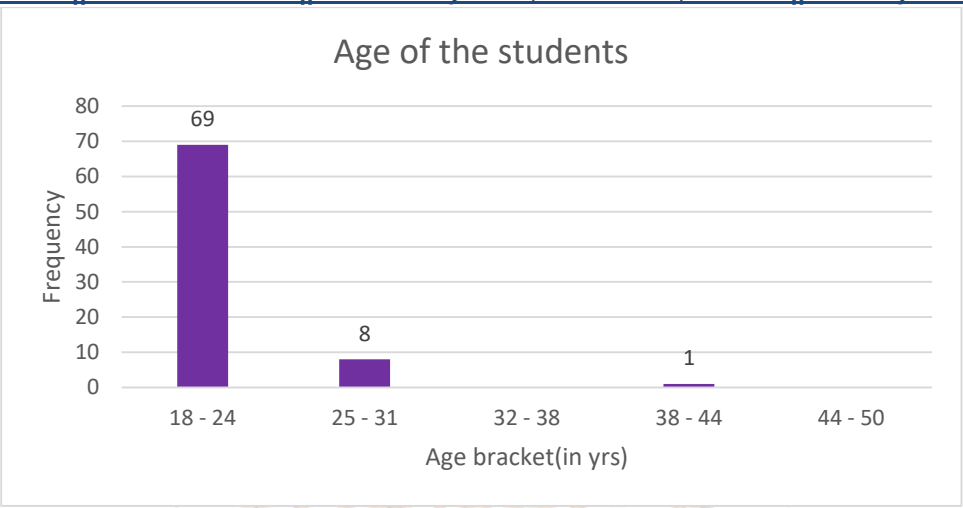

Figure 4.1 Age of the respondents

4.1.2 Level of education and progress

Study findings reveal that only 5 students out of 81 observations, accelerated from certificate course to the degree program. This translates to **5(6%)** of the students interviewed. This implies that minimal number of students who were enrolled during the period had accelerated from certificate level courses to degree level course. In addition, the study findings revealed that **54(66.7%)** an impressive enrolment and acceleration of students from diploma programmes to degree programmes. This implies that most diploma students join degree programme at KWUST.

4.2 DESCRIPTIVE STATISTICS

4.2.1 In your view, how does blended learning accelerate women's progressive education at KWUST?

The researcher sought to know how blended learning accelerates women's progressive education. A total of 49 students out of 81 responded this question. In Table 4.1, the study result reveals that majority, 25(51.02%) stated that blended learning enhances flexibility and convenience, since they are able to access learning materials from where they are. This reduces the cost of education in the long run. The findings concur with the views of Glaria (2022), who emphasized that blended learning offers flexibility in terms of availability, since it enables the student to access the materials from anywhere at any time while enjoying the benefits of face-to-face learning support and instruction.

The study also reveals that 13(26.53%), stated that blended learning improves access to quality education and makes it more sustainable and inclusive. In addition, the study result revealed that 11(12.44%) of the respondents indicated that blended learning enhances the acquisition of knowledge. This study results is consistent with the views of Marhabo(2020) who conducted a study to establish the significance of blended learning in education system. The study found that that blended learning boost effectiveness of learning and helps in achieving greater efficiency with group sizes.

Table 4.1: How blended learning accelerates women's progressive education

Statements	Frequency	Percentage
1. Enhances flexibility and convenience. The learners are able to access learning materials from where they are. This reduces the cost of education.	25	51.02
2. Helps in improving access to quality education and sustainability and inclusive.	13	26.53
3. Enhances acquisition of knowledge and increases women's participation and progression in research.	11	22.45
	49	**100**

4.2.2 Suggest some of the ways in which institutions can improve blended learning to accelerate women's progressive education.

In this section, the researcher sought suggestions for improvements in blended learning to accelerate women's progressive education. A total of 39 students out of 81 responded. In Table 4.2, the study results reveal that 8(20.51%) stated that availability of resources such as learning materials and ICT equipment's such as computers, laptops and affordable smartphones can enhance women's progressive education and will promote independent

learning. This will promote independent learning. The results also reveal that 8(20.51%) stated that LMSs should be user-friendly, institutions should invest in stable ICT infrastructure, 6(15.38%) stated that e-learning programmes should be affordable and flexible, 6(15.38%) indicated that availability of data is necessary for the institutions to make informed decision.

In addition, 6(15.38%) stated that they need meaningful consultation, students' engagements and orientation on e-Learning management systems such as e-learning management systems and others such as Moodle that are commonly used. Only 5(12.82% of the students also stated that based on what they experienced in 2020, training of lecturers and students is key so as to enhance e-learning programme awareness, facilitation and delivery. The views of the respondents concur with the suggestion made by Goh and Bing (2021) who in their study investigated the relationship between e-learning engagement, floe experience and learning engagement system. The context of the study was Moodle LMS supporting blended learning environment while controlling age and gender, the study suggested that instructors must carefully balance pedagogical decisions intended to heighten flow and experience of LMS to generate positive learning outcomes through engagements.

Table 4.2: Suggestions for improvements in blended learning

Statements	Frequency	Percentage
a) Availability of resources such as learning materials and ICT equipment's such as computers, laptops and affordable smartphones. This will promote independent learning	8	20.51
b) Make LMSs user friendly and, institutions should invest in stable ICT infrastructure	8	20.51
c)Affordable and flexible e-learning programmes	6	15.38
d) Availability of data for informed decision making	6	15.38
e) Meaningful students' engagements and orientation on e-Learning management systems such as KWUST e-learning management systems and moodle.	6	15.38
f) Training of lecturers and students to enhance e-learning programe awareness, facilitation and delivery	5	12.82
	39	**100**

4.2.3 What kind of ICT supported teaching and learning tools are used in the study programmes at KWUST?

The researcher sought to know the ICT learning tools used in the institution. The options provided were: online learning/teaching using online platforms, use of institutional online LMSs use of videos in teaching, simulator training, use of social media, or all of them. In Table 4.3, the study findings reveal that 67(82.71%) of the students indicated that they use online leaning/ teaching platforms such as institutional LMSs, and other virtual platforms such as Moodle, zoom and google meets. This is consistent with the findings of Hamdan and Amorri (2022) who found that 97% of the students interacted well using online management systems implemented, while 84% of the lecturers used interactive tools in order to engage the students.

In addition, the findings also indicate that 8(9.88%) of the respondents indicated that they use both online platforms, videos, and social media. In addition, the study findings reveal that 3(3.70%) of the respondents indicated that they use social media, and only 3(3.70%), indicated that they use videos in teaching. Jamal and Nawab (2020) in their study found 90 percent of the faculty members use social media and 30 percent share course contents. The study also emphasized that students feel that social media and mobile devices are the cheap and convenient tools of obtaining relevant information, accessing course contents, video clips and transfer of instructional materials. Table 4.3 indicate the study result revealing the use of e-learning tools.

Table 4.3: Institutional e-learning tools

ICT Tool	Frequency	Percentage
1. Online learning platforms e.g LMSs, and other virtual platforms such as Moodle, Zoom and Google Meets.	67	82.71
2. Combination of Online platforms, use of videos, use of social media.	8	9.88
3. Use of social media	3	3.70
4. Use of videos in teaching	3	3.70
	81	**99.99**

4.2.3 What is the greatest challenge in implementing blended learning while considering progressive education to accelerate women's education?

The researcher sought to identify the greatest challenge that institutions face in implementation of blended learning, taking a clients views approach. The respondents were given five options which includes: how to incorporate flexibility, how to facilitate interaction, how to facilitate students learning, how to foster an effective e-leaning and finally, inadequate resources for implementation. A total of 77 out of 81 students responded. Majority, 25(32.42%) indicated that the greatest challenge is how to incorporate flexibility – considering hybrid, 21(27.27%) indicated that it is an issue of inadequate resources. The study findings is consistent with the views of Marhabo(2020), who stated that blended learning provides flexible study anytime or anywhere designed to meet learners needs wherever they want.

The study also found that 13(16.88%) indicated that the issue is how to foster and adopt an effective e-learning in an institution**.** The study findings reveal that 12(15.58%) of the students cited that the challenge is how to facilitate students learning – a lecture's issue, while a few (7.79%) cited a challenge in interaction and communication in online platforms. Table 4.4 shows the study results.

Table 4.4: Greatest challenges in implementation of blended learning

Challenges in implementation of e-learning	Frequency	Percentage
1. How to incorporate flexibility – hybrid approach	25	32.42
2. Inadequate resources for implementation.	21	27.27
3. How to foster and adopt an effective e-leaning	13	16.88
4. How to facilitate students learning – a lecturer's issue	12	15.58
5. How to facilitate interaction and communication in online platforms	6	7.79
	77	**99.94**

4.2.4 Suggest some of the ways of solving these challenges identified.

The researcher sought suggestions from the study respondents in regard to five challenges stated. These challenges were found to be interrelated, and therefore, the following solutions were suggested by the study respondents: the study results in Table 4.5 reveals that, majority, 14(30.43%) suggested that institutions should adopt innovative pedagogical models, through well-developed manuals and use of illustrations on how blended learning is conducted, while 12(26.09%) indicated that automation of the systems and training of the students, where students registration should be done online whether they are attending in-person or online classes. A few, 8(17.39%) indicated that institutions should provide laptops, stable wifi, data bundles, official YouTube channels and any other relevant gadgets that supports learning.

The study findings concur with that of Lalila and Dangwal (2017) who studied innovative approaches in blended learning. The researchers established that there are various innovative pedagogical approaches that should be adopted. These includes: established students LMS needed to accommodate the science concept learning, instructional collaborative teaching, individualized computer-assisted learning, students' interaction with course content, peer-to-peer learning, group discussions, exchange programmes, e-library access (offline and online), virtual classrooms, online assessments, webinars, e-tuition, viewing expert lectures on YouTube, learning though videos, virtual laboratories, and accessing educational blogs.

Table 4.5: Suggested solutions to the existing challenge

Suggested solutions	Frequency	Percentage
1. Adoption of innovative pedagogical models through well-developed manual and use of illustrations on how to conduct blended learning/virtual learning.	14	30.43
2. Automation of systems and embracing training of users. Automate students' registration online whether in physical or online classes.	12	26.09
3. Provision of resources: laptops, stable wifi, data bundles, official YouTube channels for classes, and other relevant gadgets that supports learning.	8	17.39
4. Adaptation and change management. – embrace change	6	13.04
5. Sustainable funding for ICT and transparency	6	13.04
	47	**100**

4.4 INFERENTIAL STATISTICS

The study sought to establish the effect of blended learning on women's progressive education at KWUST. The study findings shows that 79 out of 81 students responded to the study. Based on the regression results of the data obtained from students, the study findings reveal that R-Squared is 0.9089, the Adjusted R-squared is 0.9039, F-statistic of 184.47 and a p-value of 0.0000. This implies that the model explains 90% of change in women's progressive education. This means that a combination of predictor variables: in-person, online, flexible learning and e-learning management systems, can predict 90 per cent change in women's progressive education. The study results also shows that there is statistically significant relationship between the study independent and dependent variables at 1% level of significance, with a p-value of 0.0000. Regression results are presented in Appendix 1.

The findings concur with the lectures' perspective. Based on the regression results of the data obtained from lecturers, the study findings reveal that R-Squared is 0.8936, the Adjusted R-squared is 0.8712, F-statistic of 39.90 and a p-value of 0.0000. This implies that the model explains 87% of changes in women's progressive education. This means that a combination of predictor variables: in-person learning, online learning, flexible learning and e-learning management systems, can predict 87 per cent change in women's progressive education. The study results also shows that there is statistically significant relationship between the study independent and dependent variables at 1% level of significance, with a p-value of 0.0000. Regression results are presented in Appendix 2.

The lecturers' perspective reveals that blended learning can accelerate women's progressive education. Ahmed (2021) conducted a study to find out lecturer's perspective on blended learning approach at private university in Mogadishu. The study findings reveal that R=0.46% and Adjusted R = 0.447. these values indicate that the weighted combination of the predicator variables (accessibility to ICT, material& instruction, and assessment) can predict 45% of the lecturers' satisfaction with the blended learning approach.

4.4.1 E-learning management systems

The regression results presented in Appendix 1 shows that there is a positive and statistically significant relationship between E-learning management systems and women's progressive education with a regression coefficient of 0.20, t-value of 6.62, and p-value of 0.000. The estimation results imply that the coefficient of E-learning management systems is statistically significant at 1 per cent level of significance. The magnitude of the coefficient of e-learning management systems is 0.20. This implies that, *ceteris paribus*, one unit change in the score of e-learning management systems leads to 0.20 units change in the score of women's progressive education.

The study results concur with the views of the lecturers. The regression results presented in Appendix 1 shows that there is a positive and statistically significant relationship between E-learning management systems and women's progressive education with a regression coefficient of 0.31, t-value of 3.44, and p-value of 0.003. The estimation results imply that the coefficient of E-learning management systems is statistically significant at 1 per cent level of significance. The magnitude of the coefficient of e-learning management systems is 0.31. This implies that, *ceteris paribus*, one unit change in the score of e-learning management systems leads to 0.31 units change in the score of women's progressive education.

4.4.2 In-person Learning

The regression results presented in Appendix 1 shows that there is a positive and statistically significant relationship between in-person learning and women's progressive education with a regression coefficient of 0.31, t-value of 11.04, and p-value of 0.000. The estimation results imply that the coefficient of in-person learning is statistically significant at 1 per cent level of significance. The magnitude of the coefficient of in-person learning is 0.31. This implies that, *ceteris paribus*, one unit change in the score of in-person learning leads to 0.31 units change in the score of women's progressive education.

The study results concur with the views of the lecturers. The regression results presented in Appendix 1 shows that there is a positive and statistically significant relationship between in-person learning and women's progressive education with a regression coefficient of 0.28, t-value of 4.35, and p-value of 0.000. The estimation results imply that the coefficient of in-person learning is statistically significant at 1 per cent level of significance. The magnitude of the coefficient of in-person learning is 0.28. This implies that, *ceteris paribus*, one unit change in the score of in-person learning leads to 0.28 units change in the score of women's progressive education.

4.4.3 Online Learning

The regression results presented in Appendix 1 shows that there is a positive and statistically significant relationship between online learning and women's progressive education with a regression coefficient of 0.2848, t-value of 10.21, and p-value of 0.000. The estimation results imply that the coefficient of online learning is statistically significant at 1 per cent level of significance. The magnitude of the coefficient of online learning is 0.28. This implies that, *ceteris paribus*, one unit change in the score of online learning leads to 0.28 units change in the score of women's progressive education.

The study results concur with the views of the lecturers. The regression results presented in Appendix 1 shows that there is a positive and statistically significant relationship between online learning and women's progressive education with a regression coefficient of 0.19, t-value of 2.85, and p-value of 0.0100. The estimation results imply that the coefficient of online learning is statistically significant at 1 per cent level of significance. The magnitude of the coefficient of online learning is 0.19. This implies that, *ceteris paribus*, one unit change in the score of online learning leads to 0.19 units change in the score of women's progressive education.

4.4.4 Flexible Learning

The regression results presented in Appendix 1 shows that there is a positive and statistically significant relationship between flexible learning and women's progressive education with a regression coefficient of 0.24, t-value of 6.11, and p-value of 0.000. The estimation results imply that the coefficient of flexible learning is statistically significant at 1 per cent level of significance. The magnitude of the coefficient of flexible learning is 0.24. This implies that, *ceteris paribus*, one unit change in the score of flexible learning leads to 0.24 units change in the score of women's progressive education.

The study results concur with the views of the lecturers. The regression results presented in Appendix 1 shows that there is a positive and statistically significant relationship between flexible learning and women's progressive education with a regression coefficient of 0.097, t-value of 1.53, and p-value of 0.142. The estimation results imply that the coefficient of flexible learning is statistically significant at 10 per cent level of significance. The magnitude of the coefficient of flexible learning is 0.097. This implies that, *ceteris paribus*, one unit change in the score of flexible learning leads to 0.097 units change in the score of women's progressive education.

4.5. Summary of the Findings

The study findings reveal that majority of the respondents, 25(51.02%) stated that blended learning enhances flexibility and convenience, since they are able to access learning materials from where they are. This reduces the cost of education in the long run. While only 8(20.51%) stated that availability of resources such as learning materials and ICT equipment's such as computers, laptops and affordable smartphones can enhance women's progressive education and will promote independent learning. This will promote independent learning. The results also reveal that 8(20.51%) stated that LMSs should be user-friendly, institutions should invest in stable ICT infrastructure.

The study findings reveal that majority of the respondents, 67(82.71%) of the students indicated that they use online leaning/ teaching platforms such as institutional LMSs, and other virtual platforms such as moodle, zoom and google meets. In addition, 25(32.42%) indicated that the greatest challenge is how to incorporate flexibility. Majority, 14(30.43%) suggested that institutions should adopt innovative pedagogical models, through well-developed manuals and use of illustrations on how blended learning is conducted.

Based on the regression results of the data obtained from students, the study findings reveal that R-Squared is 0.9089, the Adjusted R-squared is 0.9039, F-statistic of 184.47 and a p-value of 0.0000. This implies that the model explains 90% of changes in women's progressive education. This means that a combination of predictor variables: in-person, online, flexible learning and e-learning management systems, explains 90 per cent change in women's progressive education.

The study findings revealed a positive and statistically significant relationship between E-learning management systems and women's progressive education with a regression coefficient of 0.20, t-value of 6.62, and p-value of 0.000. There is a positive and statistically significant relationship between in-person learning and women's progressive education with a regression coefficient of 0.31, t-value of 11.04, and p-value of 0.000.

There is a positive and statistically significant relationship between online learning and women's progressive education with a regression coefficient of 0.2848, t-value of 10.21, and p-value of 0.000. in addition, there is a positive and statistically significant relationship between flexible learning and women's progressive education with a regression coefficient of 0.24, t-value of 6.11, and p-value of 0.000.

4.5 Implication to Research, Policy and Practice

The study has revealed the importance of blended learning in accelerating women's progressive education. It has also emphasized on the ways of reshaping blended learning so as to offer quality education for all. The study findings shows that institutions should have blended learning policy tailored to meet the needs of the learners. Likewise, the instructors should adopt an innovative pedagogical teaching approaches and guidelines for uniformity and flow of learning. Overall, continuous research in blended learning and quality education approaches is required to upscale informed decision making, and to reflect on the demands of the labour market, due to the changing patterns in the world of work.

5.0 CONCLUSION AND RECOMMENDATIONS

The study concludes that blended learning accelerates women's progressive education since it is flexible and convenient, and cheaper. It provides an opportunity that enables women pursue their education, work and engage family responsibilities through well-established e-learning management systems and platforms, in-person learning, established online learning, and flexible learning. These four variables should be well integrated during implementation of blended learning or hybrid learning.

The study recommends that an e-LMSs should be user-friendly, accessible (both offline-and online) taking into consideration areas with network challenges. The study also puts more emphasis on digital inclusion, hence higher learning institutions should be ready to comfortably accommodate the students who are able-differently. This is a call to action towards ensuring quality education for all. To achieve these institutions should focus on addressing their special needs such as use of Hand Talk App - an assistive technology for the deaf and dump, among other facilities that can help such students access learning platforms. Above all, blended learning approach needs to be flexible and adaptable, both to lecturers, students and administrators.

Encourage groups and teams to create more networks in blended learning to make it more interactive. The study also recommends stronger institutional commitment in implementation of blended learning. There is need to make resources available resource. Lecturers as facilitators should make blended learning flexible and interesting. It is important to incorporate instructional procedures such as: personal check-in, ice breaker, video segments (where applicable), group activities and role playing. Lecturers should plan in advance to design a coherent course that engages students online and introduce the active methods in online sessions. Use videos is also helpful in demonstrating practical relevance. Lecturers can also introduce tests/quiz during the online session, share videos and pose, so that the learners can reflect on what they have learnt.

The higher learning institutions, management and the teaching staff should use the right innovative instructional and pedagogical approaches or methodology for success in online course. The management should equally provide resources and build a more resilient, sustainable blended learning and educational community by being open to change, respect for diversity, developing a global consciousness, and long-term perspective while cultivating a culture of lifelong learning and quality education for all.

REFERENCES

Ahmed, S. A. S. (2021). Lecturer's Perspectives on Blended Learning Approach at Private Universities in Mogadishu: Using Multiple Regression Analysis. *SERTIEC Education Journal – SEJ* Vol 2, ISSN: 2710 – 4796 (online) https:// sef.sol.

Bassett, R. M., (2021). *Tertiary Education Systems and Diversification Adapting the Wisdom of Burton Clark in promoting effective and inclusive reforms around the world*. Burdon R. Clark, Centre for Global Higher Education Annual Conference.

Chen W., & Yao A. (2016). An Empirical Evaluation of Critical Factors Influencing Learner Satisfaction in Blended Learning: A Pilot Study. *Universal Journal College of Educational Research.4 (7), 1667-1671*

Creswell, J. W. and Creswell, J. D. (2020). *Research Qualitative, Quantitative and Mixed Methods Approach,* Sage publication Inc. USA.

Crosling, G. (2017). *Student Retention in Higher Education,* A Shared Issue. In the book: Encyclopedia of International Higher Education Systems and Institutions (pp. 1 – 6)

Fadel, E.A., Yousif A., & Mohammed, H.H. (2016) International Students' Perceived Usefulness and Satisfaction with Professional Midwifery Blended Learning Course. *American Journal of Nursing Research*. http://pubs.sciepub.com/ajnr/4/3/8/index.html

Glaria, A. (2022). *Student Motivation in A Blended Classroom.* Teachthoughts. Available at teachthough.com

Goh, T. and Bing, Y. (2021). The Role of E-Engagement and Flow on The Continuance with A Learning Management System in A Blended Environment. *International Journal of Educational Technology in Higher Education*. Article 49, Springer
Hadman, K. and Amorri, A. (2022). The Impact of Online Learning Strategies on Students' Academic Performance. E-Learning and Digital Education in the Twenty-First Century. Available at https://www.intechopen-com.
Hassan, S. A. and Shukri, N. (2017). The Effect of Blended Learning in Enhancing Female Students Satisfaction the Saudi Context. *English Language Teaching; Vol 10. No. 6, Canadian Center of Science and Education*
Herman, Clem & Gracia, Rosaria & Macniven, Lesley & Clark, Bernie & Doyle, Geraldine. (2018). Using a Blended Learning Approach to Support Women Returning to STEM. Open Learning: *The Journal of Open, Distance and e-Learning*. 34. 1-21. 10.1080/02680513.2018.1554475.
Herman, Clem & Gracia, Rosaria & Macniven, Lesley & Clark, Bernie & Doyle, Geraldine. (2018). Using a Blended Learning Approach to Support Women Returning to STEM. Open Learning: *The Journal of Open, Distance and e-Learning*. 34. 1-21. 10.1080/02680513.2018.1554475.
Heryanto, Elisa, Datten, Eduard (2022). Hybrid Learning after the COVID-19 Pandemic as Universitas Quality, *International Journal of Education, Learning and Development*, Vol. 10 No. 11 Pp73-80
Jamal, A. N. A and Nawab, A. K. (2020). Exploring the Role of social media in Collaborative Learning, The New Domain of Learning. *Springer open.*
Katy, S., Stephanice, H., Albert, B. and Jokina, H. (2021). *Retention Strategies for Online Students: A Systematic Literature Review*. DOI.105038/2577 – 509X5.1.1105.
Kaushik, V. and Walsh, C. A (2019). Pragmatism as a Research Paradigm and its Implications for Social Work Research, *Social Science* MDPI, Faculty of Social Work, University of Calgary, Canada
Kemp, S. (2022). Digital 2022: *Global Overview Report. Available* at https://datareportal.com.
Lalila and Dangwal, K. l. (2017). Blended Learning: An Innovative Approach. Universal. *Journal Of Educational Research 5(1), 129 – 136*.
Marhabo, A. M. (2020). Significance of Blended Learning in Education System. *The American Journal of Social Science and Education Innovators, ISSN – 2689 – 100X*)
Mugenyi, J. K., Chang, Z., and Edmong, K. (2017). Blended Learning Effectiveness: The Relationship Between Student Characteristics, Design Features and Outcomes. *International Journal of Educational Technology in Higher Education*.
Njoroge, M. M., Wngeri, T. and Gichure, C. (2016). Examination Repeats, Semester Deferments and Dropping out as Contributors of Attrition Rates in Private Universities in Nairobi, Kenya. *International Journal of Education and Research Vol. 4 No. 2.*
Odhong, E. (2022). A Critical Analysis of the role of Student Retention in Accelerating Women's Progressive Education in Kenya. A Case Study of Kiriri Women's University of Science and Technology. *International Journal of Education, Learning and Development, 10 (12). pp. 1-18.*
Odhong, E. A. (2018). *Influence of Human Capital Practices on Employee Performance in the Private Security Industry in Kenya*. A published thesis submitted in Partial Fulfillment for the Degree of Doctor of Philosophy in Human Resource Management in the Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya.
Rasheed, A.R., Kamsin, A., & Abdullah, N.A. (2020). Challenges in the online component of blended learning: *A systematic review*. https://www.sciencedirect.com/science/article/abs/pii/S0360131519302544
Rogers, W. R., Mitzner, T. L., Boot, W. R., Charness, N. H., Czaja, S. J. and Sharit, J. (2017). *Understanding Individual and Age-Related Differences in Technology Adoption. Innovation in Aging*, Vol. 1 Issue 1. https: doi.org/10.1093/geroni/igx004.3733.
Saeed, A. and Nor, A. B. A. (2021). The Role of Unified Theory of Acceptance and Use of Technology in E-learning Adoption in Higher Education Institutions in the UAE; *IBIMA Business Review Vol, 2021(2021*), Article ID 730690, DOI:10.5171/2021.730690.
Yamauchi, F. and Tiongco, M. (2013). Why Women are Progressive in Education? Gender Disparities in Human Capital, Labour Markets and Family Arrangements in Philippines. *Economics of education review vol. 32 pp 196 – 206,* Elsevier BV.
Zhang, Y., Chen, T. and Wang, C. (2020). Factors influencing student's willingness to choose blended learning in higher education. *International Conference on Blended Learning ICBL 2020: Blended Learning, Education in Smart Learning Environment* pp. 289 – 302.

APPENDICES: REGRESSION RESULTS

APPENDIX 1:

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. reg bbl inperson online flex elmis
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Source	SS	df	MS	Number of obs	=	79
				F(4, 74)	=	184.47
Model	62.0782877	4	15.5195719	Prob > F	=	0.0000
Residual	6.22550973	74	.08412851	R-squared	=	0.9089
				Adj R-squared	=	0.9039
Total	68.3037975	78	.875689711	Root MSE	=	.29005

bbl	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inperson	.310156	.0280864	11.04	0.000	.2541927	.3661192
online	.281506	.0275607	10.21	0.000	.2265902	.3364218
flex	.2421967	.0396108	6.11	0.000	.1632704	.3211229
elmis	.2063818	.0311626	6.62	0.000	.1442889	.2684746
_cons	-.0845127	.1560235	-0.54	0.590	-.3953963	.2263709

APPENDIX 2:

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. reg bbl inperson online flex elmis
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Source	SS	df	MS	Number of obs	=	24
				F(4, 19)	=	39.90
Model	11.9149754	4	2.97874385	Prob > F	=	0.0000
Residual	1.41835795	19	.074650418	R-squared	=	0.8936
				Adj R-squared	=	0.8712
Total	13.3333333	23	.579710145	Root MSE	=	.27322

bbl	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inperson	.2848888	.0654282	4.35	0.000	.1479459	.4218316
online	.1969655	.0690166	2.85	0.010	.052512	.3414189
flex	.0972055	.0635089	1.53	0.142	-.0357201	.2301312
elmis	.3175651	.0923867	3.44	0.003	.1241975	.5109328
_cons	.5132045	.3011215	1.70	0.105	-.1170501	1.143459