BLENDED LEARNING SYSTEM QUALITY AS AN ANTECEDENT TO COMPLETION RATE AMONG UNIVERSITY STUDENTS: INSIGHTS FROM PRIVATE UNIVERSITIES IN KIAMBU COUNTY

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ABSTRACT

The introduction of blended learning by combining traditional classroom and online learning has presented immense learning opportunities for university learners in Kenya and beyond. However, despite its growing popularity and demonstrated capability, the completion rate of university students is still below 70%. Moreover, the existing literature is indeterminate on the influence of blended learning system quality on student completion rates in Kiambu County. The purpose of this study was to determine the influence of blended learning system quality on the completion rates of university students in Kiambu County. The study was guided by the Information System Success Model Theory. The study adopted an explanatory sequential research design. Primary data was collected using questionnaires. The target population was all the 7 Private Universities in Kiambu County. Purposive sampling was used to select 139 respondents representing. Descriptive statistics and inferential analysis were used in data analysis. Tables were used to present quantitative data. The study findings revealed that a significant positive relationship exists between blended learning system quality and the completion rate of university students in Kiambu County. The study recommends that all universities private and public should invest in quality blended learning systems to enhance the completion rate of university students. Universities should ensure they use updated technology and train their instructors on the use of online learning resources to improve efficiency. The study contributed to existing literature on blended learning, particularly in the Kenyan context by presenting empirical evidence on the impact of blended learning on student completion rates of university students in Kiambu County which was earlier missing.

Key terms: Blended Learning; Completion Rate; Kiambu County; Private Universities; System Quality; University Students

INTRODUCTION

The completion rate for students has been a major concern for governments, experts and practitioners globally. Efforts have been taken over time to increase the completion rate to 100% as envisioned in the sustainable millennium development goals. The average global completion rate stood at 91.14 % in 2022 which is still lower than the projected 100% completion rate (World Bank report, 2022). In Kenya, the completion rate according to the 2019 census showed that the completion rate in pre-primary education was 5.3%, 49.8% for primary education, 24.5% for secondary schools, 7.1% for technical and vocational training institutions, and 3.5% at the university level. The average completion rate in Kenya is 72.62% as compared to the global average of 82.13 %. The situation in Kiambu County is not different

with an average 65% completion rate which is below the national average of 70% (Ministry of Education, 2023).

The completion rates are closely associated with literacy levels. According to a World Bank report (2022), the global level of literacy stood at 87% in 2020. Kenya has been on an upward trajectory in promoting education as demonstrated by increasing literacy levels. In Kenya, the literacy rate stood at 79% in 2014 increasing to 82% in 2018 and 82.88 in 2022. Kiambu County is ranked second in terms of literacy level at the rate of 88% coming second to Nairobi County with 89%. As noted, the literacy levels as well as the completion rates are lower than the global projections of 100%. This low completion rate has been attributed to various factors, including inadequate resources, poor infrastructure, low motivation, and a lack of student engagement. Consequently, it is imperative to investigate alternative approaches to improve the completion rate of students in universities (Ministry of Education, 2019).

Blended learning has been increasingly adopted in Universities in Kenya to better education quality besides student outcomes. Blended learning is a hybrid approach to teaching and learning that integrates information technology through online educational materials and opportunities for online interaction with a traditional classroom-based approach. It involves face-to-face teaching, interactive online materials and self-directed learning (Hrastinski, 2019). The emergence of COVID-19 unexpectedly forced training institutions that predominantly adopted conventional schooling involving face-to-face learning to go online. This necessitated the advancement and development of online learning systems and programmes that are progressively and widely employed as tools in teaching worldwide (Alam et al., 2021). However, despite the growing prevalence of blended learning in Kenyan universities and its demonstrated ability to enhance student engagement, motivation and academic performance across various educational settings, the role played by blended learning system quality in enhancing students' completion rate remains scarce.

Previous scholars have delved on the reasons attributed to low completion. The reasons include a lack of sufficient and appropriate reading materials and inadequate Information and Communication Technology (ICT) connectivity (Rong'uno, 2016), instructor quality (Kariuki & Gachoya, 2019), teacher training and infrastructure (Mwangi & Gitonga, 2020) as well as learner engagement (Ndegwa & Ochieng, 2022). Nonetheless, the efficacy of blended learning system quality specifically in the context of universities located in Kiambu County remains largely unexplored by researchers. The reviewed references showed that existing studies had limited focus on individual disciplines such as computer science, accounting and physics and therefore there is a need for more research to explore the effectiveness of blended learning across different disciplines.

The study also noted that a wide range of approaches were adopted in implementing blended learning but none considered blended learning system quality. Thus, the goal of the study was to determine the impact of blended learning system quality on the completion rate of students in universities in Kiambu County. The relevance of this study is in its contribution to the body of literature by providing an empirical model illustrating the role of blended learning system

quality on the completion rate of students in universities in Kiambu County and beyond. Further, the study provided up-to-date literature on the effect of blended learning system quality by filling gaps that were earlier identified in the literature review. The study further provided insights on how to improve the completion rate of students in universities.

LITERATURE REVIEW

This study was anchored on the information systems success model developed by DeLone and McLean (1992) which argues that system quality and information quality influence both user's satisfaction with the system and their intention to use the system again. This in turn affects the extent to which the system is able to yield benefits for the user and organization. This theory is relevant to the current study by outlining how systems quality assists facilitators in facilitating teaching and learning and enables learners to complete their education.

The study reviewed existing empirical literature aimed at identifying research gaps. The study identified that there exist numerous studies on the study constructs. For instance, Dampson (2021) established that the outbreak of the COVID-19 pandemic resulted in a significant shift toward technology integration in education. Higher learning institutions, including the University of Education, Winneba, were compelled to expand their technological infrastructure to support instructional activities. However, there appears to be a lack of comprehensive understanding regarding the extent to which learners at the University of Education, Winneba (UEW) embraced Learning Management Systems during the pandemic. Consequently, this study aimed to investigate the factors that contributed to the adoption of blended learning in the COVID-19 era, focusing on gathering responses from learners at UEW.

In their study, Nikolić et al (2018), aimed to provide an overview of existing quality models for blended learning systems and explore their development and future directions. The researchers conducted a survey that analysed quality models from different perspectives and dimensions, proposing their applicability in the context of blended learning systems. However, the survey revealed a limited focus on learner satisfaction and software usability, with the majority of studies primarily emphasizing other aspects of quality. The main finding of the survey highlighted the existence of numerous quality models for blended learning systems, emphasizing the importance of considering multiple dimensions of quality during the development and evaluation of such systems.

Mohammadi (2015), discovered that the intention to use and user satisfaction had a positive impact on the utilization of electronic learning. The researcher identified system quality and information quality as key factors influencing users' intentions and satisfaction towards e-learning. Furthermore, the perception of usefulness played a mediating role in the relationship between the ease of use and the utilization of blended learning among a sample of operators from four public universities in Iran.

Arthur-Nyarko et al (2021) conducted a study investigating the impact of perceived ease of use (PEOU), perceived usefulness (PU), perceived educational compatibility (PEC), and

facilitating conditions (FC) on learners' behavioural intention (BI) to utilize mobile learning management systems (MLMS) in blended distance learning environments. The study found that PEOU had the most significant influence among these factors. The researchers provided valuable recommendations for the effective long-term implementation of MLMS in college and similar educational settings.

Oketch et al. (2019) revealed that in Kenyan universities there existed a noteworthy positive association between system quality and student gratification indicating that a higher quality technical infrastructure and software can enhance students' learning experience. In their investigation, Kimutai et al (2021) highlighted the significance of course content quality, the availability of learning resources, and the quality of feedback provided to students as important factors that influence the completion rate.

Although Oketch et al. (2019) conducted a study focusing on learner satisfaction in blended learning programs, they did not specifically examine the completion rate of students. Thus, there is a research gap that warrants further investigation into the association between system quality and completion rates in Kenyan universities' blended learning programs. Future studies could explore this relationship to gain a better understanding of how system quality influences the successful completion of students in such educational settings.

The study conducted by Oketch et al. (2019) solely concentrated on examining the relationship between system quality and satisfaction. There is a need for future studies to explore additional variables that can impact the effectiveness of blended learning, such as student motivation, instructor support, and the quality of peer interactions. By considering these factors, a more comprehensive understanding of the various elements that contribute to the success of blended learning programs can be achieved.

Furthermore, Kimutai et al. (2021) conducted research that was limited to a single university in Kenya. As a result, the generalizability of the study's findings to other universities or regions may be restricted. Thus, further research is required to replicate and validate these findings across different institutions and contexts to gain more comprehensive insights. Thus although, there exists a myriad of research on blended learning, there are still gaps in literature relating to the scope of the existing studies, methodological, contextual and conceptual gaps.

RESEARCH METHODOLOGY

This section outlines the methods adopted by the study to achieve the objective. Specifically, the study adopted an explanatory sequential design to provide a comprehensive understanding of the relationship between blended learning system quality and the completion rate of university students in Kenya. The target population was all the Private Universities in Kiambu County, based on online Students. The sampling frame was the students and personnel in the E-learning department and academics department. These respondents were targeted because they are informed on blended learning system quality and student completion rates. Purposeful sampling was used to select 139 participants drawn from each of the 7 private universities in

Kiambu County. Semi-structured questionnaires were used to collect data on completion rates and blended learning system quality university students in Kiambu County. Expert judgment was used to determine the construct validity as well as the content validity of the research questionnaire. The reliability of the questionnaires was determined through test-retest reliability.

Collected data was cleaned to ensure its accuracy before analysis and analysed using descriptive statistics as well as inferential statistics. Descriptive statistics included frequencies, percentages, mean scores, and standard deviations. Inferential data analysis was conducted via Pearson's correlation coefficient as well as simple linear regression analysis. Pearson's correlation coefficient was used to determine the nature and strength of the relationship existing between blended learning system quality and the completion rate of learners in universities located in Kiambu County. On the other hand, regression analysis was carried out to find out the effect of the quality of blended learning system quality on the completion rate of learners in universities located in Kiambu County. The robustness of the model was based on the coefficient of determination. The significance of the model was based on F-statistic while the significance of blended learning system quality in affecting the completion rate of learners in universities located in Kiambu County was based on P-values at 0.05 significance level.

RESULTS AND DISCUSSIONS

The objective of the study was to determine the influence of blended learning system quality on the completion rate of university students in Kiambu County. The study applied both descriptive and inferential statistics to achieve the objectives. Descriptive statistics were used to describe the blended learning and completion rate of students in universities in Kenya. Respondents were required to indicate their level of agreement/disagreement with the following statements on system quality with regard to blended learning and completion rate in universities using a 5-point Likert scale was used where: 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree. A mean value of 1.4 or below indicated strongly disagree, 1.5-2.4 indicated disagree, 2.5-3.4 indicated undecided, 3.5-4.4 indicated agree and above 4.5 indicated strongly agree. The results were as summarised in Table 1.

Table 1: Descriptive Results on System Quality

Statement	1	2	3	4	5	Mean	Std. Dev
The learning management systems provide tools to monitor and track learner activity (attendance, assignments, quizzes, discussion forums etc.) completion status	2	7	19	59	37	3.984	0.851
The online learning management system provides effective tools for communication and interaction among students and instructors.	4	8	19	50	43	3.968	0.820

You feel well secure with the use of the blended learning system	5	9	16	52	42	3.944	0.828
You are satisfied with the reliability of the blended learning management system	6	6	17	66	29	3.855	0.882
The online components of the courses load quickly without technical issues	3	10	20	61	30	3.847	0.812
The learning management system used for blended courses is user-friendly and intuitive	4	12	24	56	28	3.742	0.727
Average						**3.890**	**0.820**

The results in Table 1 indicated that the average mean was 3.890 implying that the respondents agreed that system quality influences the completion rate of university students. Particularly, results show that the respondents agreed that learning management systems provide tools to monitor and track learner activity (attendance, assignments, quizzes, discussion forums etc.) completion status indicated by a mean of 3.984, online learning management system provides effective tools for communication and interaction among students and instructors indicated by a mean of 3.968, they feel well secure with the use of the blended learning system indicated by a mean of 3.944, they are satisfied with the reliability of the blended learning management system indicated by a mean of 3.855, the online components of the courses load quickly without technical issues indicated by a mean of 3.847, and the learning management system used for blended courses is user-friendly and intuitive indicated by a mean of 3.742.

These results allude that private universities in Kiambu County were concerned with system quality. The implication is that system quality influences the completion rate among students. The findings concur with those of Mohammadi (2015) who discovered that the intention to use and user satisfaction had a positive impact on the utilization of electronic learning. System quality and information quality are key factors influencing users' intentions and satisfaction towards e-learning. Oketch et al. (2019) revealed that in Kenyan universities there existed a significant positive association between system quality and student gratification indicating that a higher quality technical infrastructure and software can enhance students' learning experience. Kimutai, et al (2021) highlighted the significance of course content quality, the availability of learning resources, and the quality of feedback provided to students as important factors that influence the completion rate.

In relation to inferential statistics, both correlation and regression analysis. Correlation analysis was conducted through Pearson's product moment correlation coefficient. Results were as summarised in Table 2.

Table 2: Correlational Results

		Completion Rate	System Quality
Completion Rate	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	124	
System Quality	Pearson Correlation	.514**	1
	Sig. (2-tailed)	.001	
	N	124	124

**. Correlation is significant at the 0.01 level (2-tailed).

The results in Table 2 show that there was a strong positive correlation between blended learning system quality and the completion rate of university students (r=0.514). The relationship was significant as shown by p=0.001<0.05. These results thus suggest that an improvement in blended learning system quality would lead to a significant increase in completion rates of university students in Kiambu County. These findings concurred with the findings of Oketch et al. (2019) revealed that in Kenyan universities there existed a positive association between system quality and student learning experience. Moreover, Nikolić et al (2018) concluded that blended learning systems quality had a positive influence on learning. Further, Mohammadi (2015) established that blended learning systems had a positive impact on user satisfaction.

Regression analysis was conducted to determine the influence of blended learning system quality on the completion rate of learners in private universities located in Kiambu County. results were as summarised in Table 3.

Table 3: Regression Analysis Results

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.604	0.364	0.359	0.46401

Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	15.058	1	15.058	69.939	0.000
	Residual	26.267	122	0.215		
	Total	**41.325**	**123**			

	Unstandardized Coefficients		**Standardized Coefficients**		
Model	B	Std. Error	Beta	**t**	**Sig.**
(Constant)	2.301	0.569		4.044	.000
System quality	0.406	0.113	.347	3.593	.000

From the findings in table 3 showed that the adjusted R square was 0.359, showing that 35.9% variation in the completion rate of university students was explained by blended learning system quality. The remaining 64.1% means that other variables not used in this study can be used to explain the completion rate of university students. The F-calculated (69.939) was higher than the f-critical (3.9188) from the F distribution tables. This implies that the model was significant in predicting the completion rate of university students. It was also noted that the p-vale 0.000<0.05, further showing the significance of the model. Hence, blended learning

system quality significantly predicts the completion rate of university students in Kiambu County, Kenya.

The regression model was fitted as follows;
$Y = 2.301 + 0.406X_3$

Beta coefficient results showed that the model constant was constant of 2.301 indicating that holding blended learning system quality at a constant zero, completion rate of university students was at a constant of 2.301. Results also showed that the beta coefficient for blended learning system quality was positive (Beta coefficient= 0.406). This implied that holding all other factors constant, a unit increase in the blended learning system quality completion rate of university students in Kiambu County would increase by 40.6%. Further, the p-value was 0.000<0.05 indicating that blended learning system quality had a significant influence on the completion rate of university students in Kiambu County. the results were consistent with the conclusions made by Kimutai et al (2021) who highlighted the significance of course content quality, the availability of learning resources, and the quality of feedback provided to students as important factors that influence the completion rate.

Conclusions and Recommendations

The objective of the study was to determine the influence of blended learning system quality on the completion rate of university students in Kiambu County. The study found that learning management systems provide tools to monitor and track learner activity (attendance, assignments, quizzes, discussion forums etc.) completion status indicated, that online learning management system provides effective tools for communication and interaction among students and instructors indicated, they feel well secure with the use of the blended learning system indicated, they are satisfied with the reliability of the blended learning system indicated, the online components of the courses load quickly without technical issues indicated, and the learning management system used for blended courses is user-friendly and intuitive indicated. The study also revealed system quality and completion rate of university students had a strong positive correlation. The study revealed that system quality had a significant and positive influence on the completion rate of university students in Kiambu County. Hence, it was concluded that system quality had a significant influence on the completion rate of university students in Kiambu County. The study recommends that the universities and telecommunication service providers should update their systems to fit with the current technological needs, this would ensure that the systems are easy to use. It is also important to consider multiple dimensions of quality during the development and evaluation of such systems to enhance blended learning.

Contribution of the Study

The study contributes to the body of knowledge by presenting an empirical model that may be used by private universities as well as public universities to improve completion rates among their students through the implementation of a quality blended learning system. The study

established that blended learning system quality had a significant positive influence on the completion rate of university students in Kiambu County.

REFERENCES

Alam, M. M., Ahmad, N., Naveed, Q. N., Patel, A., Abohashrh, M., & Khaleel, M. A. (2021). E-learning services to achieve sustainable learning and academic satisfaction: An empirical study. *Sustainability*, *13*(5), 2653.

Arthur-Nyarko, E., Gyan, S. B., & Asante, A. (2021). What determines students' behavioural intention to use mobile learning management systems? Empirical answers from a blended environment in Sub-Saharan Africa. *International Journal of Learning Technology*, *16*(4), 303-323.

Dampson, D. G. (2021). Determinants of learning management system adoption in an era of COVID-19: Evidence from a Ghanaian university. *European Journal of Education and Pedagogy*, *2*(3), 80-87.

DeLone, P. & McLean, B. (1992). *DeLone and McLean model of I.S. success*. S. 240-253.

Hrastinski, S. (2019). What Do We Mean by Blended Learning? TechTrends, 63(5), 564–569. https://doi.org/10.1007/s11528-019-00375-5

Kariuki, P. M., & Gachoya, D. (2019). The role of instructor quality in blended learning environments: A case study of higher education institutions in Kenya. *Journal of Higher Education in Africa*, 17(2), 75-94.

Kimutai, S. K., Jagero, N., & Ngware, M. W. (2021). Factors influencing the completion rates of blended learning programmes in Kenyan universities: a case of Kisii University. Journal of Online Learning and Teaching, 17(2), 260-275.

Ministry of Education (2023). Technical and Vocational Education and Training (T.V.E.T.) in Kenya. Retrieved from https://www.education.go.ke/index.php/technical-vocational-education-and-training-tvet-in-kenya/

Ministry of Education. (2019). *Kenya education sector report*. Nairobi, Kenya: Government Printer.

Mohammadi, H. (2015). Investigating users' perspectives on e-learning: An integration of T.A.M. and I.S. success model. *Computers in human behavior*, *45*, 359-374.

Ndegwa, N. K., & Ochieng, J. O. (2022). Exploring the relationship between instructor quality, student engagement, and completion rates in blended learning settings at universities in Kiambu County, Kenya. *Journal of Teaching and Learning with Technology*, 11(2), 93-110.

Nikolić, S., Kaljevic, I., Jović, V., Petković, D., Milovančević, M., Dimitrov, D., & Dachkinov, V. (2018). Quality models of blended learning systems: *A systematic literature review. Computers in Human Behavior*, 89, 419-435. doi: 10.1016/j.chb.2018.08.009.

Oketch, M., Ndirangu, M., & Omwenga, E. (2019). Blended learning satisfaction and system quality: A study of Kenyan universities. *International Journal of Information and Communication Technology Education*, 15(3), 1-14.

Rong'uno, S. K. (2016). *Institutional and student related factors and doctoral studies completion rates in education at selected public universities in Kenya*.

World Bank, 2022. (2022). I.C.T. in Technical and Vocational Education and Training (T.V.E.T.). Retrieved from https://*www.worldbank.org/new/en/ict-in-education/themes/technical-and-vocational-education-and-training-tvet/*