



Behavioural Intention and Adoption of Digital Learning: The Case of a mHealth Community Health Training Programme in Kenya

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Abstract: This study examined the relationship between learners' behavioural intention and the adoption of mobile learning (mLearning) in an mHealth training program in Kenya. The study is premised on the Unified Theory of Acceptance and Use of Technology (UTAUT). The original data used in this study was drawn from an unpublished PhD thesis on mLearning adoption by the author. The sample size of 354 was determined using Yamane's (1967) formula, and the study achieved 294 completed responses, representing a response rate of 83.05%. A data collection instrument was designed, validated for low-resource settings and items were tailor-made for mobile learning. The data was analysed using descriptive statistics, Pearson correlation, and regression analysis. The descriptive findings showed that overall behavioural intention to adopt mobile learning recorded a high mean score ($M = 4.43$, $SD = 0.85$, $N = 294$). In addition, behavioural intention was positively and significantly associated with mLearning adoption ($r = .502$, $p < .01$). The regression analysis confirmed that behavioural intention significantly predicted mobile learning adoption and explained 25.2% of the variance in adoption. The study concludes that learners' intentions and perceptions are important determinants of mobile learning adoption in low-resource settings. Successful implementation of mLearning should therefore emphasise ease of use, perceived usefulness, institutional and social support, learner knowledge, and adequate facilitating conditions.

Keywords: Digital learning, Digital pedagogy, mobile learning, behavioural intention, technology adoption.

INTRODUCTION

The integration of Information and Communication Technologies (ICTs) and digital pedagogy has contributed to the transformation in educational delivery. Digital technologies are an important part of day-to-day life across many sectors, including health, agriculture, commerce and education (Chernysh et al., 2023; Jelimo et al., 2024; Rahimi & Oh, 2024; Reddy et al., 2020). More specifically, mobile devices are transforming the way individuals learn, conduct business, communicate, access information, and interact with their social and economic environments. Equally, mobile learning has become an integral part of supporting flexible access to educational opportunities anytime, anywhere (Liu et al., 2024). Mobile devices support learning in different locations and times, hence extending educational opportunities beyond traditional face-to-face classroom environments (Aeni et al., 2026; Gatotoh et al., 2020; Sarker et al., 2021; Zou et al., 2025). The widespread availability and personal nature of mobile devices make them particularly relevant for educational delivery (Alam & Mohanty, 2023; Naveed et al., 2023).

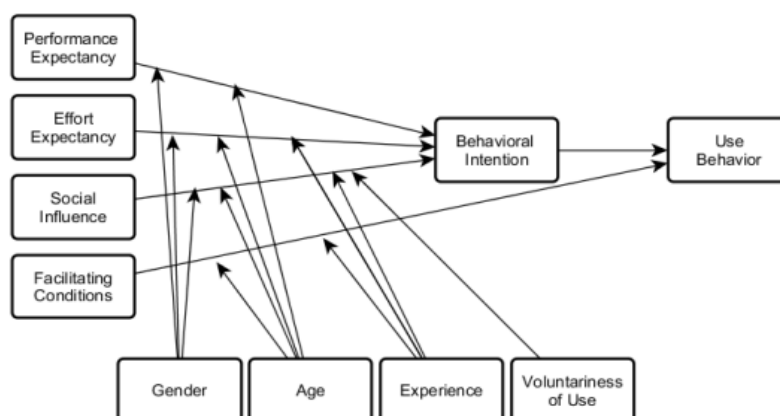
Notably, as mobile devices become increasingly accessible, their availability does not translate into effective adoption for digital pedagogy (Antoninis et al., 2023; Mwansa et

al., 2025). Learner characteristics, perceptions, technological capabilities, and the surrounding social and institutional environment may influence whether mobile technologies are ultimately adopted (Arifudin, 2025; Qashou, 2021). It is thus crucial for educators intending to adopt digital pedagogy to understand the factors that influence adoption since mobile technologies may offer practical alternatives to more expensive and infrastructure-intensive educational technologies (George et al., 2023; Hsieh, 2024). Several studies emphasise the potential of mobile learning to expand access to education providing learners with greater flexibility over when, where, and how learning occurs (Gatotoh et al., 2020; Jelimo et al., 2024; Kukulska-Hulme & Traxler, 2005). Similarly, other studies have identified personalisation, collaboration, and learner autonomy as important affordances of mobile learning (Parsons et al., 2024; Quan et al., 2024).

Digital learning research, including studies on mobile learning adoption, argues that behavioural intention and contextual factors explain how access to technology is converted into actual educational use (Chao, 2019; Valencia-Arias et al., 2024). Behavioural intention denotes an individual's deliberate plan to engage in a particular behaviour. Within technology-acceptance research, behavioural intention is generally understood as an important proximal determinant of actual technology use (Alowayr, 2022; Chao, 2019; Sahani et al., 2025).

This study is anchored in the Unified Theory of Acceptance and Use of Technology (UTAUT). The theory was developed by integrating eight established theories and models of technology acceptance (Venkatesh et al., 2003). UTAUT is particularly suitable for mobile learning research because mLearning adoption involves both individual perceptions and contextual conditions (Alowayr, 2022). This shows that learners' will to use mobile learning is shaped by both instrumental considerations and characteristics of the learning experience (Aytekin et al., 2022; Wang et al., 2009).

The Unified Theory of Acceptance and Use of Technology has several constructs that appear to be significant direct determinants of intention or usage of technology. In the present study, behavioural intention is examined through the four core UTAUT determinants: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). This approach enables the study to move beyond the simple question of whether learners have access to mobile devices and instead examine the factors associated with converting access into educational adoption Figure 1.



Unified Theory of Acceptance and Use of Technology (UTAUT), (Venkatesh et al., 2003)

A critical component of digital pedagogy adoption is performance expectancy. Performance expectancy is the degree to which an individual believes that using a technology will help achieve valued outcomes or improve performance (Venkatesh et al., 2003). An end user's expectation of a particular digital technology's performance influences their intention to adopt it (Sarfaraz, 2017). In a learning environment, performance expectancy reflects learners' perceptions that mobile technologies can improve the quality of learning and timeliness of feedback. In the context of mLearning, performance expectancy significantly influenced behavioural intention to use mobile learning (Wang et al., 2009). A systematic review of UTAUT applications in higher education found that performance expectancy generally exerted the strongest influence on behavioural intention. However, the review also cautioned that the relative importance of UTAUT constructs varies across contexts and technologies. The study revealed a major focus on learners from Asia and North America (Xue et al., 2024). This thus exacerbates the need for the current study, which focuses on behavioural intention and mobile learning adoption in low-resource settings.

Notably, the effort of the end user is key to technology adoption. In effect, therefore, effort expectancy proponents argue that if users of a technology perceive it to be easy to use, then they are likely to accept and use it (Sarfaraz, 2017). Effort expectancy is the level of ease associated with using a technology (Venkatesh et al., 2003). In mobile learning, it concerns the extent to which learners perceive mobile learning applications and platforms as easy to understand, navigate, learn, and operate (Gatotoh, 2017; Wang et al., 2009). Indeed, Wang et al. (2009) reported that effort expectancy significantly influenced behavioural intention to use mLearning. More broadly, systematic reviews identify effort expectancy or perceived ease of use as one of the recurring determinants of mobile learning acceptance.

Social influence is another important consideration for digital pedagogy adoption. According to proponents of social influence, individuals have a likelihood of adopting an innovation when they want to enjoy a sense of belonging (Sarfaraz, 2017). Social influence studies suggest that if individuals perceive that important people in their social environment believe they should use a particular technology, then they are likely to use it (Venkatesh et al., 2003). In educational contexts just like other sectors, social influence may come from peers, instructors, supervisors, institutional leaders, professional colleagues, and other valued referents for learners (Butera et al., 2021; Sarfaraz, 2017). In mLearning specifically, Wang et al. (2009) found that social influence was a significant determinant of intention, with its influence differing across demographic groups. The finding suggests that the social environment shapes learners' perceptions of whether mobile learning is appropriate and worthwhile. This study therefore conceptualises social influence as a critical determinant of adoption of technology in mobile learning.

Finally, facilitating conditions imply the extent to which technology users believe that institutions and technical resources serve to enable technology use (Venkatesh et al., 2003). Facilitating conditions are particularly important because behavioural intention cannot easily translate into actual use in the absence of enabling resources. In mobile learning, facilitating conditions include access to suitable devices, connectivity, technical support, digital knowledge, learning resources, assistance from facilitators, and compatibility between the learning platform and technologies available to learners (Nikolopoulou, 2023; Sophonhiranrak, 2021). Several studies argue that facilitating

conditions are a meaningful determinant of digital learning adoption (Bayaga & du Plessis, 2024; Twum et al., 2022). Notably, facilitating conditions are especially critical in low-resource settings, where device access does not ensure reliable learning. Limited data, poor connectivity, storage and battery constraints, lack of support, and insufficient app skills can widen the gap between intention and actual adoption.

The present study was undertaken against the backdrop of high mobile telephony penetration in Kenya and other parts of Africa (Gatotoh, 2017; Grzybowski, 2022; Kitimbo, 2021; Okello, 2024; van Zanden, 2023). This study examined the relationship between learners' behavioural intention and the adoption of mobile learning in an mHealth community health training program in Kenya.

METHODOLOGY

The study was anchored in the pragmatism research paradigm. This paradigm was selected due to its support for the integration of mixed methods, enabling a more comprehensive exploration of the research problem (Elgeddawy & Abouraia, 2024; Sim et al., 2024). Accordingly, the study employed a mixed-methods-compatible logic that values both breadth and depth of understanding through the use of quantitative techniques to assess relationships among key constructs.

The target population consisted of 3,081 participants drawn from the two phases of the mHealth program. A sample size of 354 was determined using Yamane's (1967) formula for calculating sample sizes for finite populations (Umar & Wachiko, 2021). The study achieved 294 complete responses, representing a response rate of 83.05%.

The location of the study was the six counties in Kenya selected from the thirteen counties where the mHealth program had been implemented. The counties were stratified into three categories based on their predominant socio-geographic characteristics. Urban counties comprised Nairobi and Kisumu, reflecting high-density, highly serviced environments. Rural counties included Kitui and Kakamega, representing predominantly agrarian and dispersed settlements. Nomadic counties consisted of Samburu and Kajiado, characterised by pastoralist mobility and semi-arid conditions.

Behavioural intention was operationalized using four constructs adapted from the Unified Theory of Acceptance and Use of Technology (UTAUT): Social Influence (SI), Performance Expectancy (PE), Effort Expectancy (EE), and Facilitating Conditions (FC). A 28 UTAUT-based behavioural intention items were adopted from a research instrument developed by Venkatesh et al. (2003). Each construct was measured using multiple items rated on a five-point Likert scale ranging from 1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree to 5 = Strongly Agree.

Cronbach's Alpha (α) was used to test internal consistency for behavioural intention items computed alpha value of 0.915 was obtained. The descriptive statistics figures were calculated for each of the items (mean and standard deviation). Pearson correlation analysis was then used to assess the association between the behavioural intention and mLearning adoption. Regression analysis was employed to estimate the extent to which behavioural intention (via its UTAUT dimensions) significantly predicted mLearning adoption.

RESULTS

A descriptive analysis was conducted to examine learners' behavioural intention to adopt digital learning by assessing their intention to use mobile learning across 28 UTAUT-based behavioural intention items. Mean scores and standard deviations were computed to summarise the distribution of responses, as presented in Table 1.

Table 1: Behavioural Intention UTAUT constructs

UTAUT constructs	Statement	Mean	Std. Deviation
Social Influence (SE)	SE1	4.28	.778
	SE2	4.24	.770
	SE3	4.44	.714
	SE4	3.88	1.232
	SE5	4.08	1.078
	SE6	3.83	1.101
	SE7	4.34	.856
Performance Expectancy (PE)	PE1	4.59	.633
	PE2	4.48	.628
	PE3	4.46	.710
	PE4	4.53	.651
	PE5	4.52	.656
	PE6	4.40	.775
	PE7	4.44	.703
Effort Expectancy (EE)	EE1	4.45	.813
	EE2	3.08	1.487
	EE3	4.32	.773
	EE4	4.49	.606
	EE5	4.41	.719
	EE6	4.41	.758
	EE7	4.35	.800
Facilitating Conditions (FC)	FC1	3.80	1.132
	FC2	4.38	.809
	FC3	4.43	.775
	FC4	4.31	.961
	FC5	3.94	1.127
	FC6	4.19	1.004
	FC7	4.50	.639
N=294		$\bar{x}=4.43$	SD = 0.85

The results of the aggregate behaviour intention to adopt mobile learning yield a mean score ($M = 4.43$, $SD = 0.85$, $N = 294$). These results imply a high level of agreement across the UTAUT constructs, suggesting strong behavioural intention toward mobile learning adoption among the learners.

Mean scores for Social Influence (SE) items ranged from 3.83 to 4.44, indicating that learners generally perceive positive encouragement from peers, instructors, and significant others to adopt mobile learning. On the other hand, Performance Expectancy (PE) recorded consistently high means (4.40 to 4.59) with low standard deviations, indicating strong and uniform perceptions that mobile learning improves academic performance and efficiency.

The narrow spread of scores demonstrates stable perceptions across the sample. Most Effort Expectancy (EE) items showed high means (4.32 to 4.49) and moderate variability, indicating that learners generally find mobile learning easy to use. EE2 is a notable exception ($M = 3.08$, $SD = 1.487^*$), reflecting substantial disagreement and wide variability in perceptions of ease of use for that particular item. This suggests that mobile learning is broadly perceived as user-friendly; however, certain aspects may still pose usability challenges for some learners. Finally, Facilitating Conditions (FC) show moderately high means (3.80 to 4.50) but with higher standard deviations than other constructs, indicating variability in access to resources, technical support, and enabling infrastructure. FC1 ($M = 3.80$, $SD = 1.132$) and FC5 ($M = 3.94$, $SD = 1.127$) suggest uneven availability of support and resources. FC7 ($M = 4.50$, $SD = .639$) reflects strong agreement that some enabling conditions are reliably available.

To examine the relationship between behavioural intention and mobile learning adoption, a Pearson correlation analysis was conducted. Table 2 presents the Pearson correlation coefficients examining the relationship between the four indicators of behavioural intention, Social Influence (SI), Performance Expectancy (PE), Effort Expectancy (EE), and Facilitating Conditions (FC) and the adoption of mobile learning (mLearning).

Table 2: Correlation for the Individual Indicators of Behavioural Intention and Adoption of mLearning

		Social Influence (SI)	Performance Expectancy (PE)	Effort Expectancy (EE)	Facilitating Conditions (FC)
Adoption of mLearning	Pearson Correlation	.348**	.358**	.416**	.336**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	294	294	294	294
**. Correlation is significant at the 0.01 level (2-tailed).					

All correlations were statistically significant at the 0.01 level, indicating meaningful associations between each behavioural intention construct and mLearning adoption.

The results show that Effort Expectancy (EE) had the strongest positive correlation with mLearning adoption ($r = .416$, $p < .001$), suggesting that learners who perceive mobile learning as easy to use are more likely to adopt it. Performance Expectancy (PE) ($r = .358$, $p < .001$) and Social Influence (SI) ($r = .348$, $p < .001$) also demonstrated moderate positive correlations, indicating that learners' perceptions of usefulness and the influence of important referents both contribute to adoption. Facilitating Conditions (FC) showed the weakest, though still significant, correlation ($r = .336$, $p < .001$), implying that supportive technical and organizational conditions play a role, albeit to a lesser extent. These results underscore the importance of strengthening user support, enhancing perceived usefulness, and fostering positive social and institutional environments to promote successful mLearning uptake. Further, a correlation for overall behavioural intention, combining all four constructs, was conducted as shown in Table 3.

Table 3: Correlation for the Combined Indicators of Behavioural Intention and Adoption of mLearning

		Behavioural Intention
Adoption of mLearning	Pearson Correlation	.502
	Sig. (2-tailed)	.000
	N	294
**. Correlation is significant at the 0.01 level (2-tailed).		

The results showed a moderate, positive correlation between behavioural intention and mLearning adoption ($r = .502$, $p < .01$), indicating that higher behavioural intention was associated with a greater likelihood of adoption. These findings reinforce the central role of behavioural intention in shaping adoption outcomes. It highlights the importance of strengthening motivational and contextual factors when implementing mLearning initiatives. The study hypothesised that H_0 : Learner behavioural intention has no significant effect on the adoption of mLearning within the mHealth community health training programme in Kenya. To test this hypothesis, a simple linear regression model was fitted: $Y = 1.004 + 0.766X$ was fitted. where Y represents mLearning adoption, and X represents behavioural intention.

The regression analysis showed that the model was statistically significant, $F(1, 244) = 82.02$, $p < .001$, with behavioural intention explaining 25.2% of the variance in mLearning adoption ($R^2 = .252$). Behavioural intention emerged as a significant positive predictor, $B = 0.766$, $SE = 0.085$, $B = .502$, $t(244) = 9.06$, $p < .001$. This indicates that a one-unit increase in behavioural intention corresponds to a 0.766-unit increase in mLearning adoption.

The null hypothesis was therefore rejected, indicating that behavioural intention significantly and positively predicted mLearning adoption. These findings demonstrate that behavioural intention is a significant and meaningful predictor of mobile learning adoption, underscoring its importance for institutions seeking to implement mLearning initiatives.

DISCUSSION

The findings establish that behavioural intention is an important determinant of digital learning and specifically mobile learning adoption. Learners who expressed stronger intentions and more favourable perceptions towards mobile learning were more likely to adopt it (Hasan et al., 2025; Hossain et al., 2021; Sahani et al., 2025).

The overall regression results show that behavioural intention explained approximately one-quarter of the variation in mobile learning adoption. In spite of substantial contribution, the remaining unexplained variance suggests that other factors may also influence adoption. These may include learner characteristics, technology infrastructure, device functionality, connectivity, instructional design, digital literacy, and contextual factors. These findings are consistent with multiple studies showing that behavioural intention can significantly influence digital learning adoption on its own. However, they also indicate that adoption is typically shaped by multiple factors operating together, rather than by behavioural intention alone (Al-Emran et al., 2020; Granić, 2022; Gupta et al., 2021; Moya & Camacho, 2021). Notably the study established that among the four dimensions examined, performance expectancy recorded the highest overall

descriptive mean. This suggests that learners generally recognised the educational benefits of mobile learning, including faster completion of learning activities, improved access to information, quicker feedback, and improved learning outcomes. These perceptions are important because learners are likely to be motivated to adopt a technology when they believe that it will improve their performance or provide meaningful educational benefits.

CONCLUSION

The study concludes that the four UTAUT-informed dimensions of behaviour intention, social influence, performance expectancy, effort expectancy, and facilitating conditions support adoption of digital mobile learning. It further concludes that access to mobile devices is necessary; it is not sufficient to ensure adoption. Mobile learning initiatives in low-resource environments should therefore address both behavioural and contextual factors by enhancing perceived usefulness, ensuring user-friendly features, fostering supportive social and institutional environments, and providing adequate facilitating conditions. This will ensure that mLearning programs can better support sustained learner engagement and effective adoption. The findings have important implications for educational institutions seeking to implement mobile learning in low-resource settings.

RECOMMENDATIONS

Based on the findings of this study, it is recommended that training institutions design digital learning initiatives that intentionally strengthen behavioural intention by enhancing perceived usefulness, simplifying user experience, and fostering supportive social and institutional environments. For digital pedagogy to succeed, learning institutions should strengthen contextual enablers, including reliable connectivity, technical support, and well-designed instructional materials for effective adoption of mobile learning in low-resource settings.

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REFERENCES

- Aeni, A. N., Salmah, H. S., Agistie, D. S., Nurainun, S. R., & Muhammad, N. (2026). Development of the Bestin Android App to Improve the Reading Qur'an of Students Elementary Schools. *Al Ibtida: Jurnal Pendidikan Guru MI*, 13(1).
- Al-Emran, M., Arpaci, I., & Salloum, S. A. (2020). An empirical examination of continuous intention to use m-learning: An integrated model. *Education and information technologies*, 25(4), 2899-2918.
- Alam, A., & Mohanty, A. (2023). Learning on the move: a pedagogical framework for state-of-the-art mobile learning. International Conference on Data Management, Analytics & Innovation,

- Alowayr, A. (2022). Determinants of mobile learning adoption: Extending the unified theory of acceptance and use of technology (UTAUT). *The International Journal of Information and Learning Technology*, 39(1), 1-12.
- Antoninis, M., Alcott, B., Al Hadheri, S., April, D., Fouad Barakat, B., Barrios Rivera, M., Baskakova, Y., Barry, M., Bekkouche, Y., & Caro Vasquez, D. (2023). Global Education Monitoring Report 2023: Technology in education: A tool on whose terms?
- Arifudin, O. (2025). Why digital learning is the key to the future of education. *International Journal of Education and Digital Learning (IJEDL)*, 3(4), 201-210.
- Aytekin, A., Özköse, H., & Ayaz, A. (2022). Unified theory of acceptance and use of technology (UTAUT) in mobile learning adoption: Systematic literature review and bibliometric analysis. *COLLNET Journal of Scientometrics and Information Management*, 16(1), 75-116.
- Bayaga, A., & du Plessis, A. (2024). Ramifications of the Unified Theory of Acceptance and Use of Technology (UTAUT) among developing countries' higher education staffs. *Education and information technologies*, 29(8), 9689-9714.
- Butera, F., Batruch, A., Autin, F., Mugny, G., Quiamzade, A., & Pulfrey, C. (2021). Teaching as social influence: Empowering teachers to become agents of social change. *Social Issues and Policy Review*, 15(1), 323-355.
- Chao, C.-M. (2019). Factors determining the behavioral intention to use mobile learning: An application and extension of the UTAUT model. *Frontiers in psychology*, 10, 1652.
- Chernysh, V., Melnyk, A., Konotop, O., Meljnyk, K., & Matkovska, N. (2023). Integration of the latest information and communication technologies into pedagogical practice: Impact analysis, effectiveness and challenges on the way to sustainable implementation in higher education. *Cadernos de Educação Tecnologia e Sociedade*, 16(1), 163-172.
- Elgeddawy, M., & Abouraia, M. (2024). Pragmatism as a research paradigm. European Conference on Research Methodology for Business and Management Studies,
- Gatotoh, A. M. (2017). Learner characteristics, behaviour, technology use and adoption of mobile learning among community health care trainees, Amref Health Africa, Kenya. *Amref Health Africa, Kenya (Doctoral dissertation. Nairobi, Kenya: University of Nairobi)*.
- Gatotoh, A. M., Gakuu, C., & Keiyoro, P. (2020). Use of Mobile Learning to Provide Inclusive Education in Low Resource Settings: Experiences from the Community mHealth Training Project, Kenya. *EPiC Series in Education Science*, 3, 108-114.
- George, A. S., George, A. H., & Baskar, T. (2023). The death of analog: Assessing the Impacts of ubiquitous mobile technology. *Partners Universal Innovative Research Publication*, 1(2), 15-33.
- Granić, A. (2022). Educational technology adoption: A systematic review. *Education and information technologies*, 27(7), 9725-9744.
- Grzybowski, L. (2022). Disruptive Technologies in South Africa and Sub-Saharan Africa: The Case of Mobile Telecommunications Services.
- Gupta, Y., Khan, F. M., & Agarwal, S. (2021). Exploring factors influencing mobile learning in higher education-A systematic review. *ijim*, 15(12), 141.
- Hasan, A., Raghuwanshi, S., Harsora, H., Kumar, P., Gupta, V., & Singh, A. S. (2025). Elearning adoption among millennials: behavioural intentions and the extended UTAUT model. *Discover Education*, 4(1), 400.
- Hossain, M. N., Talukder, M. S., Khayer, A., & Bao, Y. (2021). Investigating the factors driving adult learners' continuous intention to use M-learning application: a fuzzy-set analysis. *Journal of Research in Innovative Teaching & Learning*, 14(2), 245-270.

- Hsieh, C. (2024). Mobile-Assisted Language Learning (MALL). *The TESOL encyclopedia of English language teaching*, 1-7.
- Jelimo, R. J., Gatotoh, A. M., & Origa, J. O. (2024). Mobile technology, farmer education and performance of agricultural projects: A case of the digifarm sunflower project in Makueni County, Kenya. *Social Sciences, Humanities and Education Journal (SHE Journal)*, 5(1), 106-115.
- Kitimbo, A. (2021). Mobile money and financial inclusion of migrants in sub-Saharan Africa. In *Research handbook on international migration and digital technology* (pp. 251-266). Edward Elgar Publishing.
- Kukulska-Hulme, A., & Traxler, J. (2005). *Mobile learning: A handbook for educators and trainers*. Psychology press.
- Liu, C., Wang, Y., Evans, M., & Correia, A.-P. (2024). Critical antecedents of mobile learning acceptance and moderation effects: A meta-analysis on technology acceptance model. *Education and information technologies*, 29(15), 20351-20382.
- Moya, S., & Camacho, M. (2021). Identifying the key success factors for the adoption of mobile learning. *Education and information technologies*, 26(4), 3917-3945.
- Mwansa, G., Ngandu, M. R., & Mkwambi, Z. (2025). Bridging the digital divide: exploring the challenges and solutions for digital exclusion in rural South Africa. *Discover Global Society*, 3(1), 54.
- Naveed, Q. N., Choudhary, H., Ahmad, N., Alqahtani, J., & Qahmash, A. I. (2023). Mobile learning in higher education: A systematic literature review. *Sustainability*, 15(18), 13566.
- Nikolopoulou, K. (2023). Self-regulated and mobile-mediated learning in blended tertiary education environments: Student insights from a pilot study. *Sustainability*, 15(16), 12284.
- Okello, F. (2024). Bridging Kenya's digital divide: Context, barriers and strategies. *Digital Policy Hub. Centre for International Governance Innovation*, 1-13.
- Parsons, D., Palalas, A., Nikou, S., & Rodulfo, S. (2024). Mobile learning frameworks and pedagogy: A systematic review. *European Journal of Education*, 59(2), e12601.
- Qashou, A. (2021). Influencing factors in M-learning adoption in higher education. *Education and information technologies*, 26(2), 1755-1785.
- Quan, Z., Grant, L., Hocking, D., & Connor, A. (2024). Distinctive mobile learning: Where it is different and how it can make a difference. *Interactive Learning Environments*, 32(1), 257-272.
- Rahimi, R. A., & Oh, G. S. (2024). Rethinking the role of educators in the 21st century: navigating globalization, technology, and pandemics. *Journal of Marketing Analytics*, 12(2), 182-197.
- Reddy, P., Sharma, B., & Chaudhary, K. (2020). Digital literacy: A review of literature. *International journal of technoethics (IJT)*, 11(2), 65-94.
- Sahani, C., Rawat, N., & Bhatnagar, M. (2025). Decoding Digital Learning: Analysing Antecedents of Behavioural Intention and E Learning Adoption. *e-mentor*, 111(4), 32-45.
- Sarfaraz, J. (2017). Unified theory of acceptance and use of technology (UTAUT) model-mobile banking. *Journal of Internet Banking and Commerce*, 22(3), 1-20.
- Sarker, I. H., Hoque, M. M., Uddin, M. K., & Alsanoosy, T. (2021). Mobile data science and intelligent apps: concepts, AI-based modeling and research directions. *Mobile Networks and Applications*, 26(1), 285-303.
- Sim, C. L., Wong, T. A., Sin, K. Y., & Sivakumaran, V. M. (2024). Pragmatism as a paradigm for quality management research in bridging academic-practitioner gaps. *International Journal of Quality and Service Sciences*, 16(2), 330-342.

- Sophonhiranrak, S. (2021). Features, barriers, and influencing factors of mobile learning in higher education: A systematic review. *Heliyon*, 7(4).
- Twum, K. K., Ofori, D., Keney, G., & Korang-Yeboah, B. (2022). Using the UTAUT, personal innovativeness and perceived financial cost to examine student's intention to use E-learning. *Journal of Science and Technology Policy Management*, 13(3), 713-737.
- Umar, A. M., & Wachiko, B. (2021). Tara Yamane (1967), Taro Yamane method for sample size calculation. the survey causes of mathematics anxiety among secondary school students In minna metropolis. *Mathematical Association Of Nigeria (Man)*, 46(1), 188.
- Valencia-Arias, A., Cardona-Acevedo, S., Gómez-Molina, S., Vélez Holguín, R. M., & Valencia, J. (2024). Adoption of mobile learning in the university context: Systematic literature review. *PloS one*, 19(6), e0304116.
- van Zanden, J. L. (2023). Examining the relationship of information and communication technology and financial access in Africa. *Journal of Business and Economic Options*, 6(3), 26-36.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view1. *MIS quarterly*, 27(3), 425-478.
- Wang, Y. S., Wu, M. C., & Wang, H. Y. (2009). Investigating the determinants and age and gender differences in the acceptance of mobile learning. *British journal of educational technology*, 40(1), 92-118.
- Xue, L., Rashid, A. M., & Ouyang, S. (2024). The unified theory of acceptance and use of technology (UTAUT) in higher education: A systematic review. *Sage Open*, 14(1), 21582440241229570.
- Zou, Y., Kuek, F., Feng, W., & Cheng, X. (2025). Digital learning in the 21st century: trends, challenges, and innovations in technology integration. *Frontiers in Education*,