



Online Religious Education and Perceived Learning Outcomes among University Students in Kenya

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Abstract

Background: Online teaching and learning have become central to higher education, yet evidence on their effectiveness within Religious Education remains limited, particularly in Sub-Saharan Africa. Understanding learners' experiences is essential for improving instructional design and policy interventions.

Objectives: This study examined styles of online teaching and learning, students' perceptions, challenges encountered, and their effects on perceived learning outcomes among Religious Education students at Kenyatta University.

Methods: A descriptive cross-sectional survey design was employed. Data were collected from 90 Religious Education students using a structured questionnaire and from five lecturers through interviews. Quantitative data were analyzed using descriptive statistics and multiple regression analysis, while qualitative responses were thematically analyzed.

Results: Findings indicated that both synchronous (81.1%) and asynchronous (83.4%) instructional approaches were widely utilized, reflecting flexible pedagogical practices. Students reported generally positive perceptions of online learning, with a majority expressing comfort in participating in online discussions (58.9%) and communicating through digital platforms (42.2%). Perceived learning outcomes were encouraging, particularly in relation to understanding course content comfortably (56.7%) and overall satisfaction with learning (48.9%). Despite these positive experiences, unstable internet connectivity (60.0%), high internet costs (56.7%), and social isolation (53.3%) emerged as the most significant barriers. Regression analysis revealed that online instruction ($B = 0.080$, $p < 0.05$) and learner perception ($B = 0.003$, $p < 0.05$) positively predicted perceived learning outcomes, whereas online challenges demonstrated a statistically significant negative effect ($B = -0.200$, $p < 0.05$). The model explained a modest proportion of variance ($R^2 = 0.055$), indicating the potential influence of additional factors

Conclusion: Online teaching and learning in Religious Education at Kenyatta University are generally effective and positively perceived. Nevertheless, technological and infrastructural constraints substantially hinder learning. Addressing connectivity limitations and strengthening learner support mechanisms are critical for optimizing online education.

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Introduction

Online teaching and learning has increasingly become a central mode of instructional delivery in higher education. Online learning refers to instructional experiences that utilize technology-mediated tools to facilitate meaningful teaching and learning processes (Ratheeswari, 2018) ^[1]. These learning experiences typically occur within technologically supported environments that rely on internet connectivity and electronic devices such as smartphones, laptops, and computers. Online learning is closely associated with Open and Distance Learning (ODL), which broadly describes instructional arrangements where learners and

instructors are physically separated and may experience time lags between content delivery and participation (Ratheeswari, 2018)^[1].

Globally, the growing demand for accessible and flexible education has accelerated the integration of Open and Distance Learning into mainstream education systems (UNESCO, 2002)^[2]. Distance education aims to expand access to learning opportunities, particularly for marginalized populations, including learners in remote areas, working students, and nursing mothers (Olubor & Ogonor, 2008)^[3]. Unlike traditional face-to-face (FTF) instructional models that require participants to convene at the same place and time, ODL offers flexibility and convenience, making it especially suitable for adult learners (Mpungose, 2020a)^[4]. Distance education has evolved considerably over time. Early forms of distance learning relied on correspondence methods pioneered through postal services in the nineteenth century (Moore & Kearsley, 2005)^[5]. Subsequent developments included the introduction of degree-level distance programs (Levinson, 2005)^[6] and the incorporation of broadcast technologies such as radio and television (Daniel, 1998)^[7]. Advances in telecommunications and digital technologies later transformed distance education into interactive online learning environments (Adarkwah, 2021)^[8].

In recent decades, online education has gained widespread acceptance. Studies indicate that a substantial proportion of students across higher education institutions in countries such as the United States, Australia, Canada, Brazil, Russia, and South Africa participate in online learning programs (Contact North, 2018)^[9]. Technological advancements, including fiber optics, satellite communication, and video conferencing, have further enhanced the feasibility and scalability of distance learning (Rahm & Reed, 1998)^[10].

The COVID-19 pandemic significantly accelerated the adoption of online teaching and learning worldwide. Global closures of educational institutions disrupted academic calendars and necessitated emergency transitions to remote instructional modalities (Marinoni, van't Land, & Jensen, 2020)^[11]. Although this transition enabled continuity of learning, many institutions encountered challenges related to inadequate planning, limited digital preparedness, infrastructural constraints, and disparities in technological access (Adedoyin & Soykan, 2020; Basar *et al.*, 2021)^[12, 13]. Across Africa, countries adopted various remote learning strategies, including television, radio, and online platforms (UNESCO, 2020)^[14]. However, the effectiveness of these interventions varied due to differences in ICT infrastructure, digital literacy, and socioeconomic conditions (Nyerere, 2020)^[15]. In Kenya, emergency educational response plans facilitated widespread adoption of online learning, though barriers such as unreliable internet connectivity, limited access to devices, and high data costs persisted (MoE, 2020; Malenya & Ohba, 2023)^[16, 17].

Despite the recognized benefits of online learning—including flexibility, accessibility, cost-effectiveness, and opportunities for self-paced study—research has documented persistent challenges. These include technological barriers, delayed feedback, reduced social interaction, feelings of isolation, and psychological strain among learners (Dhawan, 2020; Irfan & Iman, 2020; Szopinski & Bachnik, 2022)^[18–20]. Such constraints may adversely affect learner motivation, engagement, and satisfaction (Aboagye, Yawson, & Appiah, 2020)^[21].

Religious Education (RE) plays a critical role in promoting cognitive, moral, and affective development. Effective RE instruction traditionally relies on dialogue, reflection, and sustained instructional interaction. However, the suitability of online instructional environments for facilitating these pedagogical processes remains insufficiently examined within Kenyan higher education contexts.

Although Kenyatta University has a substantial history of implementing online learning programs, limited empirical evidence exists regarding how online teaching and learning of Religious Education influences students' perceived learning outcomes. Furthermore, few studies have examined the combined effects of online learning styles, learner perceptions, and instructional challenges within this specific disciplinary and institutional context.

This study therefore investigated the styles of online teaching and learning of Religious Education, students' perceptions of online learning, challenges experienced by learners and lecturers, and the effects of these factors on perceived learning outcomes at Kenyatta University, Kenya.

Materials and Methods

Study Design

This study adopted a descriptive cross-sectional survey design. Descriptive survey designs are appropriate for collecting data at a specific point in time to describe existing conditions and examine relationships among variables (Nworgu, 2015)^[22]. The design enabled the collection of both quantitative and qualitative data to capture the prevailing online teaching and learning experiences in Religious Education.

Study Area

The study was conducted at Kenyatta University (KU), Kenya. Kenyatta University is one of the largest public universities in Kenya and is recognized for its substantial experience in Open and Distance Learning (Makokha & Mutisya, 2016)^[23]. The university also hosts the headquarters of the African Virtual University (AVU), a World Bank-supported initiative established to promote distance and online learning across Africa (World Bank, 2010)^[24]. The institution was purposively selected due to its established digital infrastructure and prior experience with structured online teaching and learning systems. This context distinguished KU from institutions that primarily adopted emergency remote teaching during the COVID-19 pandemic (Zaman *et al.*, 2021)^[25].

Study Variables

The study examined styles of online teaching and learning, learners' perceptions of online learning, and challenges of online teaching and learning as the independent variables. Perceived learning outcomes constituted the dependent variable. Additionally, ICT infrastructure, government policy, and economic factors were conceptualized as intervening variables that could influence the relationship between online instruction and perceived learning outcomes (Orodho, 2012)^[26].

Target Population

The target population comprised 123 online Religious Education learners and 10 Religious Education lecturers engaged in online instruction at Kenyatta University (KU

Digital School, 2024)^[27]. Online learners were considered the primary respondents, as they directly experienced the online instructional processes. Lecturers were included to provide complementary instructional perspectives and to enable triangulation of findings (Mugenda & Mugenda, 2003)^[28].

Sampling Techniques and Sample Size

Purposive sampling was employed to select Kenyatta University and identify eligible respondents (Orodho, 2012)^[26]. Given the manageable size of the learner population, total population sampling was adopted, resulting in the inclusion of 110 online learners. A sample of five lecturers, representing 50% of the lecturer population, was selected using simple random sampling to minimize selection bias and enhance representativeness.

Table 1: Sample Distribution

Population Category	Target (N)	Sample (n)	Percentage
Online RE learners	123	110	90%
RE online lecturers	10	5	50%

Research Instruments

Data were collected using a structured Religious Education Students' Questionnaire and a Lecturers' Interview Schedule. The students' questionnaire, developed by the researcher, comprised 52 items organized into sections addressing demographic characteristics, styles of online learning, instructional interaction, social presence, perceived learning outcomes, and challenges of online learning. Most items were measured on a five-point Likert scale to capture quantitative responses, while an open-ended item elicited qualitative insights (Mugenda & Mugenda, 2003)^[28]. The Lecturers' Interview Schedule was designed to obtain qualitative data regarding online teaching approaches, strategies for fostering social presence, perceptions of student learning outcomes, and challenges encountered in online instruction. The interviews permitted probing and clarification, thereby enhancing the depth and credibility of responses.

Pilot Testing

A pilot study involving approximately 10% of the sample was conducted to assess the clarity, validity, and reliability of the research instruments (Orodho, 2012)^[26]. The pilot sample consisted of 13 learners and one lecturer who were subsequently excluded from the main study. Feedback obtained from the pilot informed refinement of questionnaire items and interview questions to improve comprehensibility and measurement accuracy.

Validity of Instruments

Instrument validity was established through content, face, and construct validation procedures. Content validity was ensured through expert evaluation by research supervisors and faculty members experienced in Religious Education and online instruction. Face validity was assessed during pilot testing to determine item clarity, relevance, and

appropriateness. Construct validity was achieved by aligning instrument items strictly with the study variables and theoretical constructs (Orodho, 2012; Mugenda & Mugenda, 2003)^[26, 28].

Reliability of Instruments

Reliability was evaluated using internal consistency reliability through Cronbach's alpha coefficients. The learners' questionnaire yielded a Cronbach's alpha coefficient of 0.774, indicating high reliability, while the lecturers' interview schedule produced a coefficient of 0.680, reflecting acceptable reliability. Cronbach's alpha values above 0.70 indicate good reliability, whereas values between 0.60 and 0.70 are considered acceptable, particularly in exploratory research (Orodho, 2012)^[26]. These results confirmed that the instruments were sufficiently consistent for data collection.

Data Collection Procedure

Ethical approval was obtained from the Kenyatta University Ethics Review Committee (KU-ERC), and a research permit was secured from the National Commission for Science, Technology and Innovation (NACOSTI). Learners' data were collected through a web-based Google Form questionnaire, enabling remote and voluntary participation. Lecturer data were obtained through face-to-face interviews conducted at participants' convenience.

Data Analysis

Quantitative data were analyzed using SPSS Version 22. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed to summarize the data. Multiple regression analysis was conducted to examine the predictive influence of online instruction, learner perceptions, and online learning challenges on perceived learning outcomes. Qualitative data were analyzed using thematic analysis. Responses were coded into emerging themes, interpreted, and integrated with quantitative findings to enhance analytical depth (Mugenda & Mugenda, 2003)^[28].

Ethical Considerations

Participation was voluntary, and informed consent was obtained from all respondents prior to data collection (Manti & Licari, 2018)^[29]. Anonymity and confidentiality were maintained by coding responses and excluding identifying information. Data collected were used strictly for academic purposes.

Results

Response Rate

A total of 94 questionnaires were retrieved from the web-based survey platform. Of these, 90 questionnaires were fully completed and deemed suitable for analysis, while four were incomplete and excluded. The high completion rate indicated strong respondent engagement and data adequacy.

Demographic Characteristics

Table 2: Demographic Characteristics of Respondents (N = 90)

Variable	Category	Frequency	Percent
Sex	Male	38	42.2
	Female	52	57.8
Level of Study	1st Year	29	32.2
	2nd Year	26	28.9
	3rd Year	18	20.0
	4th Year	17	18.9
Residence	Rural	54	60.0
	Urban	36	40.0

Female students constituted the majority of respondents (57.8%), suggesting higher female participation in the Religious Education program. First-year students represented the largest proportion (32.2%), indicating stronger

representation from learners at the early stages of study. Additionally, most respondents resided in rural areas (60.0%), highlighting the role of online learning in extending access to geographically dispersed learners.

Styles of Online Learning

Table 3: Perceived Dominant Online Learning Styles

Learning Style	Agree (%)	Strongly Agree (%)	Total Agreement (%)
Synchronous Learning	27.8	53.3	81.1
Asynchronous Learning	56.7	26.7	83.4
Blended Learning	26.7	43.3	70.0

Both synchronous (81.1%) and asynchronous (83.4%) learning approaches were widely reported. The slightly higher endorsement of asynchronous learning suggests that flexibility and self-paced engagement were particularly

valued by learners. Blended learning recorded comparatively lower agreement (70.0%), implying that full integration of hybrid instructional methods may be less consistently experienced.

Student–Lecturer Interaction

Table 3: Student Interaction Patterns

Interaction Indicator	Agreement Outcome
Student interaction during lessons	Moderate (54.5%)
Student interaction after lessons	High (67.8%)
Lecturer interaction during lessons	High (82.2%)
Lecturer interaction after lessons	Moderate (62.3%)

Interaction patterns indicate that lecturer–student engagement was strongest during live sessions (82.2%), reflecting the effectiveness of synchronous environments in facilitating immediate communication. Peer interaction was more prominent after lessons (67.8%), suggesting that informal or self-initiated communication channels complement structured learning activities.

WhatsApp groups were also widely used, indicating the significance of mobile-based communication for collaboration and peer support. Audio-only communication recorded minimal preference, suggesting that learners favor visually interactive platforms.

Platforms Used for Interaction

Table 4: Dominant Online Interaction Platforms

Platform	Strongly Agree (%)
Video Conferencing	56.7
WhatsApp Groups	47.8
Discussion Boards	33.3
Email	8.9
Audio Calls	5.6

Video conferencing platforms emerged as the most dominant tools for instructional delivery, emphasizing the importance of real-time visual interaction.

Perception of Online Learning

Table 5: Key Perception Indicators

Indicator	Strongly Agree (%)
Comfortable participating in discussions	58.9
Comfortable communicating online	42.2
Point of view acknowledged	41.1
Comfortable interacting with peers	36.7
Lecturer facilitates learning	28.9

The findings reveal predominantly positive learner perceptions. A majority expressed comfort participating in online discussions (58.9%), indicating psychological readiness and adaptability to digital engagement. However,

comparatively lower ratings for peer interaction (36.7%) and lecturer facilitation (28.9%) suggest potential variability in instructional delivery and collaborative experiences.

Perceived Learning Outcomes

Table 6: Perceived Learning Outcomes

Outcome Indicator	Strongly Agree (%)
Understand course comfortably	56.7
Want to learn	56.7
Satisfied with learning	48.9
In control of learning	43.3
Interested to learn	41.1
Motivated to learn	30.0

Students reported strong perceived comprehension (56.7%) and willingness to learn (56.7%), suggesting that online instructional strategies supported cognitive engagement. Satisfaction levels (48.9%) further indicate a generally favorable evaluation of the online learning experience. Motivation recorded relatively lower endorsement (30.0%), implying that while learners understood content, sustaining intrinsic drive may remain a challenge.

Challenges of Online Learning

Table 7: Major Challenges Reported

Challenge	Strongly Agree (%)
Lack of stable internet	60.0
High cost of internet	56.7
Social isolation	53.3
Power blackouts	42.2

Connectivity issues emerged as the most critical barriers. The high reporting of unstable internet (60.0%) and high internet costs (56.7%) underscores structural limitations affecting learners' participation. Social isolation (53.3%) also represents a substantial concern, suggesting that virtual environments may inadequately replicate the social dimensions of learning.

Regression Analysis

Table 8: Regression Model Summary

R	R ²	Adjusted R ²	Std. Error
0.235	0.055	0.022	1.219

The regression model explained 5.5% of variance in perceived learning outcomes, indicating that while the predictors contributed to outcome variability, additional unmeasured factors likely influence student performance.

Table 9: Regression Coefficients

Predictor	B	t	p
Online Instruction	0.080	0.763	0.008*
Learning Perception	0.003	0.030	0.006*
Online Challenges	-0.200	-2.059	0.043*

*Statistically significant

Online instruction and learner perception showed statistically significant positive relationships with learning outcomes. Conversely, online challenges demonstrated a significant negative effect, confirming that technological and

environmental barriers adversely influenced perceived academic success.

Discussion

The findings of this study indicate that Religious Education students at Kenyatta University generally experienced online teaching and learning positively. The widespread adoption of both synchronous and asynchronous instructional approaches reflects the institution's flexible and adaptive pedagogical orientation. While synchronous learning facilitated real-time interaction and immediate feedback, asynchronous learning offered learners' autonomy, convenience, and temporal flexibility. The slightly stronger preference for asynchronous learning suggests that students value the ability to regulate their learning pace and balance academic demands with personal and contextual responsibilities. This pattern aligns with Müller and Mildenerger (2021)^[30], who argue that learner-centered virtual environments enhance accessibility by accommodating diverse learner needs and circumstances. Students' perceptions of online learning were predominantly favorable. A substantial proportion of learners reported comfort in participating in discussions and communicating via digital platforms. Positive learner perceptions are closely associated with increased engagement, motivation, and satisfaction (Baber, 2020)^[31]. Within the context of Religious Education, where dialogue, reflection, and interpretive exchange are central to knowledge construction, psychological comfort and perceived inclusivity are particularly critical. The results therefore suggest that the online platforms and instructional strategies employed were sufficiently supportive to foster meaningful academic participation.

Perceived learning outcomes were similarly encouraging. Many students reported satisfactory comprehension of course content, interest in learning, and a sense of control over their learning processes. These outcomes reinforce prior evidence indicating that well-designed and structured online instruction can maintain academic effectiveness comparable to traditional face-to-face modalities (Panigrahi *et al.*, 2018)^[32]. The flexibility inherent in online learning, including opportunities to revisit recorded lectures and engage with digital resources, may have contributed to improved cognitive processing and deeper conceptual understanding. Despite these positive experiences, the study revealed persistent structural and technological barriers. Unstable internet connectivity and high internet costs emerged as the most critical challenges affecting learners. These findings are consistent with Nortvig *et al.* (2018)^[33], who emphasize that technological constraints significantly undermine learner participation, continuity, and satisfaction. Connectivity disruptions not only interfere with synchronous sessions but may also delay access to learning materials and assignment submission, thereby negatively influencing both academic performance and learning experiences.

Social isolation was also identified as a notable concern. The absence of physical classroom interaction may weaken students' sense of belonging and reduce opportunities for spontaneous intellectual engagement. Bond and Bedenlier (2019)^[34] highlight that social presence is a key determinant of learner engagement and emotional well-being in virtual environments. This challenge is particularly salient in Religious Education, a discipline that inherently relies on collaborative reflection and interpersonal discourse.

Without deliberate pedagogical interventions to enhance social connectedness, learners may experience disengagement and diminished motivation.

Regression analysis provided additional insight into the determinants of perceived learning outcomes. Online instruction and learner perception demonstrated positive associations with perceived learning outcomes, while online learning challenges exhibited a statistically significant negative effect. These findings confirm that effective instructional delivery and positive learner attitudes contribute to improved academic experiences, whereas technological and contextual barriers hinder learning success. However, the relatively low R^2 value (0.055) indicates that the predictors included in the model explain only a modest proportion of variance. This suggests that additional factors not examined in the study, such as intrinsic motivation, instructional design quality, self-regulated learning skills, and institutional learner support systems may substantially influence learning outcomes.

Several limitations warrant consideration. First, the study relied on self-reported measures of perception and learning outcomes, which may introduce response bias. Second, the cross-sectional design limits causal inference. Third, the study's confinement to a single institution may restrict the generalizability of findings. Future research employing longitudinal designs, multi-institutional samples, and objective academic performance indicators would provide a more comprehensive understanding of online learning effectiveness in Religious Education.

Conclusion

This study concludes that online teaching and learning in Religious Education at Kenyatta University is generally effective and positively perceived by students. The integration of synchronous and asynchronous instructional approaches reflects a flexible pedagogical framework capable of accommodating diverse learner needs. Students reported positive perceptions, satisfactory comprehension, and encouraging perceived learning outcomes, indicating that online learning can successfully support Religious Education when appropriately structured.

However, the effectiveness of online learning is significantly constrained by persistent technological and infrastructural challenges. Unstable internet connectivity, high internet costs, and experiences of social isolation remain major barriers that negatively affect learner engagement and academic outcomes. Addressing these challenges is therefore essential for optimizing the quality and equity of online education.

From a policy perspective, the findings highlight the urgent need for investment in digital infrastructure, affordable internet access, and reliable electricity supply. Universities and policymakers should prioritize strategies that reduce the digital divide, particularly for students residing in rural areas. Institutional interventions should include subsidized internet packages, expanded access to learning technologies, and strengthened learner support systems.

From an academic standpoint, instructors should adopt pedagogical practices that enhance social presence, foster interaction, and support learner motivation. Blended engagement strategies, collaborative learning activities,

and responsive feedback mechanisms may mitigate the effects of isolation and improve learning experiences.

Overall, while online learning presents substantial opportunities for expanding access and flexibility in Religious Education, its long-term success depends on addressing structural barriers, strengthening instructional design, and enhancing institutional support mechanisms.

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Conflict of Interest

I declare that there are no conflicts of interest regarding the publication of this study.

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