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From Perception to Practice: Exploring ICT Integration Preparedness and Intention Among Pre-Service Teachers in Selected Public Universities in Kenya

Dr. John K. Keter[1]*; Dr. Joy M. Wabuke[2]

[1,2] University of Kabianga
School of Education, Arts and Social Sciences
Department of Curriculum Instruction and Educational Media

Corresponding Author: Dr. John K. Keter*

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Abstract: The current study explored the association between pre-service teachers' perception of readiness to use Information and Communication Technology (ICT) to support teaching and learning, and the intention to implement ICT. Based on the Technology Acceptance Model (TAM) and the Technological Pedagogical Content Knowledge (TPACK) framework, the study examined how perceived competence, self-efficacy, and access to resources influence pre-service teachers' behavioral intentions. Given the continued prioritization of ICT integration in education in Kenya, there is a need to understand the preparedness and intentions of those who will become teachers. A correlational research design had been used, with 350 pre-service teachers from five public universities in Kenya. To assess ICT integration preparedness and intention, the researchers constructed a validated electronic 5-point Likert-scale questionnaire and collected data. The instrument was pilot-tested among 40 participants at Moi University (not included in the main sample). A Cronbach's alpha coefficient of $\alpha = .89$ for the reliability test showed high internal consistency. Results showed that there was a significantly positive correlation between perceived preparedness and ICT integration intention ($r = .68$, $p < .001$). Further, regression analysis results ($\beta = .64$, $t(348) = 15.22$, $p < .001$) revealed that ICT preparedness was a significant positive predictor of teachers intention to integrate ICT in teaching and learning. The study highlights the need for pre-service teachers to possess sufficient ICT skills and positive attitudes toward the use of technology. The authors provide implications for programs around teacher education and policy recommendations.

Keywords: *ICT Integration, Pre-Service Teachers, Preparedness, Intention, Teacher Education, Kenya.*

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I. INTRODUCTION

The integration of Information and Communication Technology (ICT) in education is globally recognized as a transformative force in teaching and learning (UNESCO, 2019). ICT offers a range of opportunities to enhance collaborative learning, critical thinking, and student-centered pedagogies (Kirkwood & Price, 2014). In response to these global shifts, the Kenyan government has prioritized the digitization of education through initiatives such as the Digital Literacy Programme (DLP), underscoring the centrality of ICT in the national education agenda (Ministry of Education, 2018).

The COVID-19 pandemic further accelerated the integration of digital technologies in education, highlighting the urgent need for teachers to be adequately prepared to use ICT tools effectively (Trust & Whalen, 2020). For pre-service teachers who represent the next generation of educators developing competencies and confidence in ICT use is critical. Research suggests that their intention to adopt ICT in the

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classroom is closely linked to their perceived preparedness (Chai et al., 2011; Sang et al., 2010; Tondeur et al., 2012).

Teacher preparedness encompasses technical proficiency, pedagogical strategies, and psychological readiness to integrate ICT. Empirical studies show that practical experiences, modeling by teacher educators, and technology-rich practicum placements enhance this preparedness (Tondeur et al., 2012). Reflective practice and targeted feedback have also been shown to strengthen teacher confidence in using ICT effectively (Jimoyiannis, 2010; Koh & Divaharan, 2011). Importantly, embedding ICT training within teacher education curricula not only builds digital skills but also fosters long-term motivation to integrate technology (Agyei & Voogt, 2011; Polly et al., 2010).

Intention to integrate ICT reflects a teacher's commitment to future ICT use and is influenced by both individual beliefs and contextual factors. The Theory of Planned Behavior (Ajzen, 1991) and the Technology Acceptance Model (TAM; Davis, 1989) posit that intention is shaped by perceived ease of use, usefulness, attitudes, and self-efficacy. Moreover, factors such as institutional support, peer collaboration, and access to digital tools play a mediating role (Inan & Lowther, 2010).

This study draws on both the TAM and the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006). TAM emphasizes individual perceptions of technology use, while TPACK addresses the integration of technology with pedagogy and content knowledge. Together, these frameworks offer a comprehensive lens to understand both the internal and external factors shaping pre-service teachers' ICT integration behavior.

ICT continues to play a critical role in modern education, supporting interactive, inclusive, and personalized learning experiences. With increased investments in infrastructure, professional development, and emerging technologies such as artificial intelligence and cloud-based platforms, the digital transformation of education is accelerating (UNESCO, 2021; Selwyn, 2012). As future educators, pre-service teachers are at the heart of this transformation. Their perceptions of preparedness and their intention to use ICT will significantly influence the effective integration of digital tools in Kenyan classrooms.

While prior research has largely focused on ICT integration among in-service teachers (Kiptalam & Rodrigues, 2019), there is limited evidence on pre-service teachers, particularly within the Kenyan context. This study addresses this gap by examining the relationship between perceived ICT integration preparedness and intention to integrate ICT among pre-service teachers in selected Kenyan public universities.

➢ *Statement of the Problem.*

Notwithstanding significant national outlays in ICT infrastructure and policy efforts to advance the use of technology in education, whether pre-service teachers are ready to implement the use of ICT in classrooms is unknown. The Competency Based Education (CBE) requires teachers to use technology in pedagogically sound and learner-centered ways; however, there is little to no evidence about the ways that teacher training in Kenya can best prepare teachers to do so. Under the Technology Acceptance Model (TAM), elements of perceived usefulness, ease of use, attitude, and self-efficacy affect ICT use; and the TPACK framework focuses on the integration of Technological, Pedagogical, and Content Knowledge. Nevertheless, there is limited research in Kenya which is able to explore the relationship of these dimensions in determining the pre-service teachers' ICT preparedness and intention to integrate technology in teaching and learning. This relationship is critical to enable the ICT use to meet the aims of CBE for teachers of tomorrow.

➢ *Purpose of the Study*

The purpose of this study is to examine the relationship between pre-service teachers' perceived ICT preparedness and their intention to integrate ICT in teaching and learning. Moreover, the study seeks to determine the extent to which pre-service teachers' level of ICT preparedness predicts their intention to utilize ICT tools in instructional practices..

➢ *Research Objectives*

- To assess pre-service teachers' perceptions of hICT preparedness.
- To determine pre-service teachers' levels of intention to integrate ICT
- To examine the relationship between pre-service teachers' perceived ICT preparedness and their intention to integrate ICT in teaching and learning
- To examine the extent to which ICT preparedness predicts pre-service teachers' intention to integrate ICT in teaching and learning.

➢ *Research Questions*

- What are the perceptions of pre-service teachers regarding their preparedness to integrate ICT in teaching and learning?
- What is the level of intention among pre-service teachers to integrate ICT in their future classrooms?
- What is the relationship between pre-service teachers' perceived ICT preparedness and their intention to integrate ICT in teaching and learning?
- What is the extent to which ICT preparedness predicts pre-service teachers' intention to integrate ICT in teaching and learning.

➢ *Research Hypotheses*

- H_o1: There is no significant relationship between pre-service teachers' perceived ICT integration preparedness and their intention to integrate ICT in teaching and learning.
- H_o2: ICT preparedness does not significantly predict pre-service teachers' intention to integrate ICT in teaching and learning.

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II. LITERATURE REVIEW

➢ *ICT Integration in Education*

Globally, ICT integration has been recognized as a transformative driver of teaching and learning (UNESCO, 2019). ICT facilitates collaborative, creative, and critical thinking styles in the learner-participating ICT-type environments (Kirkwood & Price, 2014). ICT use in both primary and secondary education includes not only computer literacy, but also digital pedagogy and teaching and learning innovation (Selwyn, 2012). In response to the COVID-19 pandemic, a rapid shift toward digital technologies has resulted in a heightened need for teachers proficient in ICT (Trust & Whalen, 2020).

In Kenya, ICT integration is being prioritized through policies such as the Digital Literacy Programme (DLP) and Kenya Vision 2030 (Ministry of Education, 2018). These reforms accentuate the importance of ICT to the modernisation of education and are also in line with the transition to Competence-Based Education (CBE), in which student agency, problem-solving and digital literacy is emphasized. Nonetheless, infrastructure investments resulted in the emergence of greater availability of ICTs, yet teacher readiness and classroom effectiveness were still unequal (Kiptalam & Rodrigues, 2019).

➢ *ICT Integration for Teachers*

Preparedness for teachers is related to the technical competency, pedagogical strategy, and psychological readiness to operate ICT. Education studies indicated that during training pre-service teachers usually learn the basics of ICT but failed to implement them in a pedagogically appropriate manner (Agyei & Voogt, 2011; Polly et al., 2010). Experiential learning, teacher educator modeling, and technology-rich practicum environments build preparedness (Tondeur et al., 2012). Teacher confidence in using the ICT has also been shown through reflective practice and feedback (Jimoyiannis, 2010; Koh & Divaharan, 2011).

In the CBE domain, preparedness goes beyond skill and focuses on the capability to construct learner-centered, inquiry driven, and innovative teaching and learning procedures. That is to say the use of ICT should not be a bolt-on but be considered the heart and soul of education competence (UNESCO, 2021).

➢ *Intention to Integrate ICT*

Intention demonstrates an academic's preparedness as an ICT practitioner. Research from Theory of Planned Behavior (Ajzen, 1991) and Technology Acceptance Model (Davis, 1989) have shown that intention is influenced by perceived usefulness, perceived ease of use, self-efficacy and attitude (Sang et al., 2010; Chai et al., 2011). For pre-service teachers, intention is also shaped by institutional support, peer-oriented collaborative support, and means to access digital tools (Inan & Lowther, 2010). In Kenya, the literature on ICT integration has primarily focused on in-service teachers (Kiptalam & Rodrigues, 2019) and has not investigated such activities specifically with pre-service teachers. This is concerning, since the intentions of pre-service teachers largely influence actual classroom behaviors as they move into teaching.

➢ *Theoretical Basis: TAM and TPACK.*

The Technology Acceptance Model (TAM) describes the process by which individuals' perceptions assessed ease of use and perceived usefulness affect attitudes, self-efficacy, and behavioral intention to use the technology (Davis, 1989). On teacher education, TAM has been extensively used to investigate ICT adoption with regard to the subject of teacher training (Teo, 2011).

The TPACK framework, which focuses on the intertwining of technology, pedagogy and content, is crucial for successful ICT integration (Mishra & Koehler, 2006). The scope of TPACK stretches beyond technology skill to explain how technology can be effectively embedded throughout subject content and pedagogical design. In the case of pre-service teachers, TPACK-oriented training increases not only competence but fosters the confidence needed to translate ICT into various instructional settings (Voogt et al., 2013).

TAM and TPACK are a comprehensive lens to understand ICT integration, TAM is motivated by psychology and TPACK has pedagogical competence in mind. In combination, they provide insight on how pre-service teachers perceive their ICT readiness and their implication on intention to adopt ICT in line with the standards of CBE.

➢ *Empirical Studies for the Kenyan context*

Research findings on the ICT utilization for teacher education in Kenya indicate mixed outcomes. Kiptalam and Rodrigues (2019), for instance, reported in-service teachers using ICT for administrative function as opposed to interactive teaching. Agyei and Voogt (2011) highlighted that practical, curriculum-embedded ICT training is needed to facilitate pedagogic content use. Although the government has initiated ICT capacity-building initiatives, there are still discrepancies in the harmonization of the curriculum with pedagogical innovation and CBE mandate.

The work of pre-service teachers and those of the future teachers is still a very little investigated work in education. Existing evidence has found that although a large number of learners develop ICT skills, confidence and intention to use ICT in learner-centered ways is limited due to limited training, lack of modeling, and restricted opportunity for exposure to ICT during teaching practice (Tondeur et al., 2012; Sang et al., 2010). This highlights the significance of attending to both perceived readiness and intention in the context of Kenyan CBE.

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➢ *Summary of Literature Gaps*

The literature review suggests that ICT is crucial for promoting effective teaching within a CBE context, where preparedness and intention are key indicators of ICT deployment. But there are three important holes:

- Small target population for pre-service teachers in Kenya which have a fundamental function in sustaining ICT integration.
- Limited examination of preparations beyond the technical, in particular with regard to the connection between ICT use and the pedagogical and content knowledge required for CBE.
- Fewer studies that use both TAM and TPACK to explain how perceptions of preparedness impact intentions to integrate ICT.

This study aims to fill this void by examining the correlation between the perceived preparedness towards ICT by pre-service teachers in a sample of Kenyan public universities and their intention to implement ICT into teaching and learning, using the constructs of TAM and TPACK as guiding frameworks.

III. METHODOLOGY

➢ *Research Design*

This study employed a quantitative, non-experimental, correlational research design to examine the relationship between pre-service teachers' perceptions of their ICT integration preparedness and their intention to integrate ICT into teaching and learning. The rationale for selecting this design was based on the need to statistically assess the degree and direction of association between variables without manipulation, thereby preserving the natural educational context in which these perceptions and intentions occur (Creswell & Creswell, 2018).

A correlational design is particularly suitable when the goal is to explore predictive relationships among variables without inferring causality (Fraenkel et al., 2019). In this study, the primary variables of interest were ICT integration preparedness and intention to integrate ICT.

➢ *Population and Sample Size*

The study targeted approximately 3,500 final-year pre-service teachers enrolled in Bachelor of Education programs across five selected Public Universities in Kenya. Using Krejcie and Morgan's (1970) sample size determination table, a representative sample of 350 was selected. Proportional stratified sampling ensured fair representation from each university. Table 1 presents the distribution.

Table 1: Population and Sample Distribution by University

University	Population	Sample Size
University of Kabianga	830	83
Maasai Mara University	670	67
Egerton University	600	60
Kisii University	720	72
University of Eldoret	680	68
Total	**3,500**	**350**

The selected participants had relevant exposure to ICT coursework and practicum, making them suitable for the study's objectives.

➢ *Data Collection Instruments*

A structured questionnaire was used for data collection, comprising three sections:

- Demographic Information: Captured participants' characteristics, including gender, age, academic major, and prior ICT training.
- ICT Preparedness: Consisted of 20 items assessing participants' self-reported preparedness to integrate ICT in teaching and learning.
- Intention to Integrate ICT: Included 10 items measuring participants' intentions to use ICT in their future teaching practices.

Items in the second and third sections were rated on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire was reviewed by educational technology experts for content validity and to ensure the internal consistency of the questionnaire, a pilot study was conducted with 40 pre-service teachers from Moi University, a public university not included in the main study sample. The instrument, which comprised items measuring ICT preparedness and intention to integrate ICT, was subjected to Cronbach's alpha reliability analysis. The results yielded a Cronbach's alpha coefficient of $\alpha = .89$, indicating a high level of internal consistency (Fraenkel et al., 2019). This suggests that the questionnaire was reliable and suitable for measuring the constructs under investigation.

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➢ *Data Collection and Analysis*

Data were collected electronically via institutional platforms and analyzed using SPSS. The data analysis process involved four stages:

- Demographic Analysis: Frequencies and percentages were used to summarize participants' background characteristics.
- Descriptive Statistics: Means, standard deviations, minimums, and maximums were calculated to describe the central tendency and variability of key variables.
- Pearson Correlation Analysis: Conducted to assess the strength and direction of the linear relationship between ICT preparedness and intention to integrate ICT. A Pearson *r* value approaching +1 indicated a strong positive correlation.
- Linear Regression Analysis: Performed to evaluate the extent to which ICT preparedness predicts the intention to integrate ICT. The analysis reported the standardized regression coefficient (β), *t*-value, *p*-value, and the coefficient of determination (R^2), indicating the model's predictive strength.

IV. RESULTS AND DISCUSSION

Data collected from the structured questionnaire were analyzed using the Statistical Package for the Social Sciences (SPSS) version (Version 27). The analysis proceeded in four key stages, corresponding to the study's objectives and the nature of the variables involved.

A. Demographic Data

A total of 350 pre-service teachers participated in the study. Table 1 presents the demographic characteristics of the respondents. The majority were female (58.6%), under the age of 25 (60.0%), and majoring in arts-related disciplines (62.9%). Most participants (78.6%) reported having received formal ICT training.

Table 2: Demographic Characteristics of Respondents (N = 350)

Variable	Category	Frequency	Percentage (%)
Gender	Male	145	41.4
	Female	205	58.6
Age Group	Under 25	210	60.0
	25 and above	140	40.0
Academic Major	Science	130	37.1
	Arts	198	56.6
	ECD	22	6.3
ICT Training	Yes	275	78.6
	No	75	21.4

Demographic characteristics revealed that most of the respondents were female, young and majoring in arts-related disciplines. The fact that this composition is important to the Technology Acceptance Model (TAM) perspective reinforces the idea; younger participants are generally more receptive to adopting new technologies compared to older ones, while previous training in ICT improves both perceived ease of use and perceived usefulness which are two critical concepts in TAM. The large proportion of respondents with formalized ICT training (78.6%) is also consistent with the TPACK framework; as such, training plays a role in shaping TK and its interplay with pedagogical and content knowledge. Thus, the demographic features indicate that participants are in a good position to acquire positive attitudes and intentions towards integration of ICT in teaching and learning.

B. Descriptive Statistics

To assess overall trends in participants' perceptions, measures of central tendency (mean) and dispersion (standard deviation, minimum, and maximum values) were calculated for the two main continuous variables: ICT preparedness and intention to integrate ICT. These statistics offered insight into the distribution and variability of responses across the sample. For instance, higher means indicated generally positive perceptions or intentions, while standard deviations reflected the spread of scores. Table 2 provides the descriptive statistics for these variables.

Table 3: Descriptive Statistics for Key Variables

Variable	M	SD	Min	Max
ICT Preparedness	3.82	0.65	2.1	4.9
Intention to Integrate ICT	4.01	0.59	2.4	5.0

Most participants rated their ICT preparedness as moderate to high. The overall mean score for ICT preparedness was M = 3.82, SD = 0.65, while the mean score for intention to integrate ICT was M = 4.01, SD = 0.59.

C. Inferential Statistics

Inferential statistics were employed to test the study hypotheses and to determine whether the observed relationships in the sample could be generalized to the wider population of pre-service teachers. Specifically, Pearson correlation analysis

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and simple linear regression analysis were conducted to assess the strength, direction, and predictive influence of ICT preparedness on pre-service teachers' intention to integrate ICT in teaching and learning.

➢ *Pearson Correlation*

Table 4: Pearson Correlation Between ICT Preparedness and Intention

Variable 1	Variable 2	*r*	*p*
ICT Preparedness	Intention to Integrate ICT	.68	<.001

To address the third research objective examining the relationship between ICT preparedness and intention to integrate ICT, a Pearson correlation analysis was conducted. This test is appropriate when both variables are measured on an interval or ratio scale and assumptions of normality and linearity are reasonably met. The Pearson *r* coefficient ranges from –1 to +1, where values closer to +1 indicate a strong positive linear relationship. In this study, a statistically significant, strong positive correlation was found ($r = .68$, $p < .001$), suggesting that as perceived ICT preparedness increases, so does the intention to integrate ICT. Since the *p*-value ($p < .001$) is less than the significance level ($\alpha = 0.05$), the null hypothesis ($H_0 1$) was rejected.

Therefore there is a significant positive relationship between pre-service teachers' ICT preparedness and their intention to integrate ICT in teaching and learning. This indicates that as pre-service teachers' perceived preparedness in ICT increases, so does their likelihood of intending to use ICT in instructional practices. The finding supports the Technology Acceptance Model (TAM), which emphasizes the role of user perceptions and preparedness in influencing technology adoption behavior. The significant positive correlation found between pre-service teachers' perceived ICT preparedness and their intention to integrate ICT, $r = .68$, $p < .001$ suggests that higher levels of perceived preparedness were associated with a stronger intention to use ICT in teaching.

➢ *Regression Analysis*

Table 5: Regression Analysis Summary

Predictor	β	*t*	*p*	R^2
ICT Preparedness	.64	15.22	<.001	.46

A simple linear regression analysis was conducted to examine the extent to which ICT preparedness predicts intention to integrate ICT among pre-service teachers. This statistical technique estimates how much variance in a dependent variable (intention to integrate ICT) can be explained by an independent variable (ICT preparedness).

The standardized beta coefficient (β) indicates the strength and direction of the relationship, while the *t*-value and *p*-value assess the predictor's statistical significance. The coefficient of determination (R^2) shows the proportion of variance in the dependent variable explained by the model.

Results revealed that ICT preparedness was a significant positive predictor of intention ($\beta = .64$, $t(348) = 15.22$, $p < .001$), accounting for 46% of the variance in intention ($R^2 = .46$). This suggests that the more confident pre-service teachers feel about their ICT preparedness, the stronger their intention to integrate ICT into their teaching. Since the *p*-value was less than the significance level ($\alpha = 0.05$), the null hypothesis ($H_0 2$) was rejected. This implies that ICT preparedness has a statistically significant positive influence on pre-service teachers' intention to integrate ICT into teaching and learning. In other words, as pre-service teachers' level of ICT preparedness increases, so does their likelihood of intending to use ICT in instructional practices.

These findings align with the Technology Acceptance Model (TAM), which posits that perceived ease of use and perceived usefulness influence users' behavioral intention to adopt technology. Pre-service teachers who perceive themselves as adequately prepared in ICT are likely to view technology integration as both useful and manageable, thereby strengthening their intention to use it in instructional contexts. Additionally, within the TPACK framework, ICT preparedness reflects the intersection of technological, pedagogical, and content knowledge; key components that enable teachers to effectively plan and deliver technology-enhanced lessons. Thus, the strong predictive relationship observed underscores the critical role of ICT preparedness in shaping positive behavioral intentions toward technology integration in teacher education.

D. Discussion

The primary aim of this study was to examine the relationship between pre-service teachers' perceptions of their ICT preparedness and their intention to integrate ICT into teaching and learning. The findings revealed that pre-service teachers generally reported moderate to high levels of ICT preparedness and a strong intention to use ICT in their future classrooms. This suggests a positive disposition toward technology integration among the next generation of educators.

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The significant positive correlation (r = .68, p < .001) found between ICT preparedness and intention to integrate ICT aligns with previous studies that underscore the importance of teacher self-efficacy and readiness in influencing ICT integration behavior (Tondeur et al., 2017; Teo, 2011). This finding supports the theoretical premise that teachers who feel more prepared are more likely to embrace and apply digital technologies in pedagogical contexts.

Furthermore, the regression analysis indicated that perceived ICT preparedness was a strong predictor of intention to integrate ICT (β = .64, p < .001), accounting for 46% of the variance in intention. This suggests that enhancing ICT-related training and preparedness in teacher education programs can meaningfully impact how pre-service teachers intend to use ICT in the classroom. This result is consistent with the Technology Acceptance Model (TAM), which posits that perceived ease of use and perceived usefulness both shaped by training and experience drive technology adoption behaviors (Venkatesh & Davis, 2000).

Interestingly, the demographic data showed that a substantial majority (78.6%) of respondents had received prior ICT training, which may have contributed to the generally high levels of preparedness and intention observed. This reinforces the critical role that formal training plays in shaping positive attitudes and behavioral intentions regarding ICT integration.

These findings have important implications for teacher education policy and practice in Kenya and similar contexts. Specifically, curriculum developers and teacher training institutions should ensure that ICT integration is not only embedded in coursework but also supported through hands-on experiences and ongoing professional development. Strengthening pre-service teachers' confidence and competence in ICT use can serve as a catalyst for effective technology-enhanced learning in schools.

E. Summary of Major Findings

The major findings of the study are summarized as follows:

- ICT Preparedness: The mean score for ICT preparedness was M = 3.82, SD = 0.65, indicating that most pre-service teachers rated their level of ICT preparedness as moderate to high.This suggests that participants generally felt confident in their ability to use ICT tools for teaching and learning purposes.
- Intention to Integrate ICT: The mean score for intention to integrate ICT was M = 4.01, SD = 0.59, showing that pre-service teachers exhibited a strong intention to incorporate ICT into their future classroom practices. This reflects a positive attitude and readiness to adopt technology in instructional delivery.
- Relationship between pre-service teachers' perceived ICT preparedness and their intention to integrate ICT: The study revealed a significant positive relationship between pre-service teachers' perceived preparedness and their intention to integrate ICT in teaching and learning. The correlation analysis showed a strong positive relationship (r = .68, β = .64, R^2 = .46) between ICT preparedness and intention.
- Extent to which ICT preparedness predicts pre-service teachers' intention to integrate ICT: Results revealed that ICT preparedness was a significant positive predictor of intention (β = .64, $t(348)$ = 15.22, p < .001), accounting for 46% of the variance in intention (R^2 = .46). The more confident pre-service teachers feel about their ICT preparedness, the stronger their intention to integrate ICT into their teaching.

V. CONCLUSION AND RECOMMENDATIONS

➢ *Conclusion*

The findings indicated the importance of pre-service teachers' preparedness in influencing their intention to adopt ICT in teaching and learning. High ICT competence, self-efficacy, and access to digital material contributed to their readiness and willingness to use technology for future classes. These results validate that meaningful ICT integration in education can begin with teachers who not only have the necessary technical skill, but also have the pedagogical understanding to meaningfully implement technology. The findings also confirm the significance of the Technology Acceptance Model (TAM) and TPACK framework to explain the attitudes towards ICT adoption behaviors among pre-service teachers in Kenya.

➢ *Recommendations.*

- Enhance ICT training in teacher preparation: Universities should add more ICT courses in the teacher preparation programs, and focus on pragmatic and pedagogically-oriented practices that are tied into CBE criteria.
- Foster a process of In-service and Pre-service Teacher Competence: ICT competence and confidence among pre-service and in-service teachers need to be developed continuously through workshops/seminars.
- Equal access to ICT Resources: Institutions need to invest in technological infrastructure that provides suitable access, and quality engagement with ICT tools.
- Integrate TAM and TPACK in Teaching Curriculum Design: Teacher curricula need to include elements of both theories to promote positive attitudes and the successful use of technology, pedagogy and content knowledge.
- Promote Policy Advocacy: Policymakers should address the implementation of ICT in teacher training at various levels in order to promote successful implementation of Competency-Based Education in Kenya.

➢ *Recommendations for Future Research*

- Broaden the Scope of the Work: Future research should include a larger and more diverse sample of pre-service teachers from both public and private universities to enhance the generalizability of the findings.

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- Adopt a Mixed-Methods Approach: Incorporating qualitative methods such as interviews or focus group discussions could provide deeper insights into the factors influencing ICT preparedness and intention.
- Examine Longitudinal Effects: Studies tracking pre-service teachers into their early years of classroom practice could reveal how initial preparedness and intention translate into actual ICT integration behavior.
- Look into Institutional and Contextual Influences: Future studies should explore how institutional support, infrastructure, and leadership affect ICT integration readiness and use.
- Compare across Disciplines: Research could also examine variations in ICT preparedness and intention among pre-service teachers in different subject areas to identify discipline-specific needs.

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