



East African Journal of Information Technology

eajit.eanso.org

Volume 7, Issue 1, 2024

Print ISSN: 2707-5346 | Online ISSN: 2707-5354

Title DOI: <https://doi.org/10.37284/2707-5354>



EAST AFRICAN
NATURE &
SCIENCE
ORGANIZATION

Original Article

The Mediating Role of Teacher Training and Learner Orientation in ICT Integration for Competence-Based Curriculum Implementation in Kyaka II Refugee Settlement

Jessica Kabasiita^{1*}, Edmond Kagambe¹, Tawheed Kasiita¹, Maliko Kisembo^{1,2}, Aisha Namubiru¹ & Edith Namutebi¹

¹ Mountains of the Moon University; P. O. Box 837 Fort Portal, Uganda.

² Maseno University; P. O. Box 333, Maseno, Kenya.

* Correspondence ORCID ID: <https://orcid.org/0000-0002-8290-426X>; Email: jessica.kabasiita@mmu.ac.ug

Article DOI: <https://doi.org/10.37284/eajit.7.1.2056>

Date Published: **ABSTRACT**

23 July 2024

Keywords:

*ICT Integration,
Teacher Training,
Learner Orientation,
Competence-Based
Curriculum (CBC),
Refugee Education.*

This study explored the impact of teacher training and learner orientation on the integration of Information and Communication Technologies (ICTs) within the Competence-Based Curriculum (CBC) in secondary schools in Kyaka II Refugee Settlement. Despite significant efforts to improve education in refugee contexts, effective ICT integration remains a complex challenge. The research examined how teacher training and learner orientation influence ICT usage, teacher preparedness, and student engagement in this distinctive educational environment. Utilizing a descriptive survey design and questionnaires, data was collected from 455 participants, including 89 purposively selected teachers and 366 randomly selected students. Data was analyzed using SPSS to generate descriptive statistics. The findings indicate that comprehensive teacher training positively affects ICT integration, with trained educators demonstrating enhanced confidence and competence in using ICT tools, as evidenced by a moderate positive correlation coefficient ($r = 0.54$). Oriented learners exhibited increased interest and engagement in ICT-driven learning. The study identified a gap between training outcomes and practical classroom application, suggesting a need for more hands-on and continuous professional development. Challenges such as inadequate ICT infrastructure, poor internet connectivity, and limited administrative support were significant barriers to optimal ICT integration. The study recommends implementing ongoing, hands-on teacher training programs, improving ICT infrastructure, establishing robust support systems within schools, and enhancing student access to ICT resources to address these challenges and support effective ICT integration in refugee education settings.

APA CITATION

Kabasiita, J., Kagambe, E., Kasiita, T., Kisembo, M., Namubiru, A. & Namutebi, E. (2024). The Mediating Role of Teacher Training and Learner Orientation in ICT Integration for Competence-Based Curriculum Implementation in Kyaka II Refugee Settlement. *East African Journal of Information Technology*, 7(1), 173-187. <https://doi.org/10.37284/eajit.7.1.2056>

CHICAGO CITATION

Kabasiita, Jessica., Edmond Kagambe, Tawheed Kasiita, Maliko Kisémbó, Aisha Namubiru and Edith Namutebi. 2024. "The Mediating Role of Teacher Training and Learner Orientation in ICT Integration for Competence-Based Curriculum Implementation in Kyaka II Refugee Settlement". *East African Journal of Information Technology* 7 (1), 173-187. <https://doi.org/10.37284/eajit.7.1.2056>.

HARVARD CITATION

Kabasiita, J., Kagambe, E., Kasiita, T., Kisémbó, M., Namubiru, A. & Namutebi, E. (2024) "The Mediating Role of Teacher Training and Learner Orientation in ICT Integration for Competence-Based Curriculum Implementation in Kyaka II Refugee Settlement", *East African Journal of Information Technology*, 7(1), pp. 173-187. doi: 10.37284/eajit.7.1.2056.

IEEE CITATION

J. Kabasiita, E. Kagambe, T. Kasiita, M. Kisémbó, A. Namubiru & E. Namutebi "The Mediating Role of Teacher Training and Learner Orientation in ICT Integration for Competence-Based Curriculum Implementation in Kyaka II Refugee Settlement", *EAJIT*, vol. 7, no. 1, pp. 173-187, Jul. 2024.

MLA CITATION

Kabasiita, Jessica., Edmond Kagambe, Tawheed Kasiita, Maliko Kisémbó, Aisha Namubiru & Edith Namutebi "The Mediating Role of Teacher Training and Learner Orientation in ICT Integration for Competence-Based Curriculum Implementation in Kyaka II Refugee Settlement". *East African Journal of Information Technology*, Vol. 7, no. 1, Jul. 2024, pp. 173-187, doi:10.37284/eajit.7.1.2056.

INTRODUCTION

Teacher training is crucial for the effective integration of ICT in educational settings, particularly in challenging contexts like refugee settlements. Without adequate training, teachers may struggle to utilize digital tools effectively, thereby undermining the goals of the Competence-Based Curriculum (CBC). Studies highlight the significant barriers that exist, such as limited access to professional development opportunities (Tulibaleka et al., 2022). Many teachers in refugee contexts lack the necessary exposure to ICT training programs, which limits their ability to stay updated with technological advancements and integrate these tools into their teaching practices.

Moreover, teachers often face technical challenges that can disrupt the learning process. These issues are exacerbated by the lack of real-time technical support, which is critical for addressing technical difficulties promptly and maintaining teachers' confidence in using ICT (Aldheleai et al., 2019). Without adequate support, teachers may become hesitant to use digital tools, fearing technical failures that could undermine their credibility and disrupt their lessons (Buabeng-Andoh, 2012). To address these challenges, it is essential to develop comprehensive training programs that not only enhance teachers' technical skills but also equip them with effective pedagogical strategies for

integrating ICT. Ongoing professional development opportunities, such as regular workshops and online courses, are crucial for keeping teachers updated on the latest technological advancements and pedagogical methods.

Additionally, creating peer support networks can facilitate knowledge sharing and collaborative problem-solving among teachers, thereby enhancing their collective capacity to integrate ICT effectively (Almazroa & Alotaibi, 2023). Learner orientation plays a vital role in the successful integration of ICT in education, particularly in refugee contexts where students often face unique challenges. Effective orientation programs can help students develop the necessary skills and attitudes to engage with digital tools and adapt to new learning environments (Mohzana, 2024). In the context of the CBC, learner orientation is crucial for fostering critical thinking, problem-solving, and creativity, which are essential competencies for the 21st century (Muchira et al., 2023).

In refugee settings like Kyaka II, where educational resources are often limited, it is important to provide learners with opportunities to engage with ICT in meaningful ways. This can include incorporating game-based learning activities that enhance creativity and critical thinking, as well as providing access to digital learning materials through various platforms

(Mikrouli et al., 2024; Velaora et al., 2022). The integration of ICT in the instructional process can motivate learners, clarify abstract concepts, and simplify complex topics, thereby enhancing their overall learning experience (Emezirinwune et al., 2024). However, the successful implementation of ICT in education also depends on addressing the technical and infrastructural challenges that often plague refugee settlements. The lack of reliable internet access and adequate digital devices can hinder students' ability to fully engage with ICT tools (Ukpe, 2023). To overcome these barriers, it is important to invest in the necessary infrastructure and provide technical support to ensure that both teachers and students can utilize ICT effectively (Ausat & Rijal, 2024; Phulpoto et al., 2024).

Teacher training programs should focus on building digital competence and providing ongoing professional development opportunities to keep teachers updated on the latest technological and pedagogical advancements. These programs should also include components that address teachers' attitudes and beliefs about ICT, helping to overcome resistance and build confidence in using digital tools (Namubiru et al., 2024; Rizana et al., 2020). At the same time, learner orientation programs should focus on developing students' digital literacy and critical thinking skills. By incorporating ICT into the curriculum in ways that are engaging and relevant to students' lives, it is possible to create a learning environment that motivates and inspires them to achieve their full potential. This can include using ICT for collaborative projects, problem-solving activities, and creative assignments that allow students to apply their skills in real-world contexts (Mbabazi et al., 2022; Zenda & Dlamini, 2023).

It is evident that pedagogical ICT training sessions for teachers in secondary schools to equip them with the digital competencies demanded by the competence-based curriculum are lacking among refugee secondary schools (Opul, 2023; Tulibaleka et al., 2022). This gap persists despite the reported low levels of ICT usage in these schools (Nanyunja et al., 2021). Therefore, this

study aimed to explore how teacher training and student orientation could facilitate the integration of ICT in CBC implementation, providing essential ICT competencies to teachers and students through training programs and workshops. The objective was to improve the effective implementation of the Competency-Based Curriculum and its impact on students' educational achievements in Kyaka II Refugee Settlement.

Problem Statement

The integration of Information and Communication Technologies (ICT) in teaching, as part of the Competence-Based Curriculum (CBC), holds immense potential to enhance teaching quality, elevate student engagement, and nurture 21st-century skills among learners. However, secondary schools like Bukere and Bujibuli within Kyaka II Refugee Settlement face formidable challenges, including under-resourced infrastructure with inadequate classrooms, limited teaching materials, and a scarcity of qualified teachers (FCA, 2022). Moreover, the disruptive impact of ongoing conflicts has exacerbated the educational landscape for many refugee children, further complicating the effective implementation of CBC. Despite concerted efforts by stakeholders such as FCA and UNHCR, including interventions like the construction of classroom blocks, recruitment of teachers and the involvement of various partners, the current state of CBC implementation at Bukere and Bujibuli remains suboptimal. This is evidenced by overcrowded classes, insufficient teaching materials, gaps in teacher training, and a lack of defined career orientation for learners (FCA, 2022).

The primary concern arising from this scenario is the ineffective implementation of CBC, largely due to persistent challenges in under-resourcing, inadequate teaching materials, deficient teacher training, and limited career orientation opportunities. Addressing these challenges is paramount to unlocking the full potential of ICT integration and elevating teaching quality within refugee schools. Therefore, this study aims to

delve into the pivotal role of teacher training and learner orientation in ICT integration for the Competence-Based Curriculum (CBC) within Kyaka II Refugee Settlement. By bridging the gap between the ideal scenario and the current reality, this research seeks to pave the way for transformative changes that optimize the benefits of ICT integration and elevate teaching standards in refugee schools.

LITERATURE REVIEW

Teacher Training for ICT Integration in Competence-Based Curriculum (CBC)

Teacher training is fundamental for the successful implementation of ICT in the Competence-Based Curriculum (CBC). Numerous studies emphasize the necessity for teachers to possess adequate ICT skills to integrate technology effectively into their teaching practices. In Kenya, Kembabazi (2023) noted that many teachers lack the essential skills required for ICT integration, making training programs crucial. These programs should focus on equipping teachers with the capability to use ICT as a tool across all subjects, thereby enhancing learning outcomes.

In Rwanda, a study by Mpumuje (2024) found that teacher training significantly improved the integration of ICT in primary schools, leading to better student performance and engagement. Similarly, in Tanzania, Chachage & Thakrar (2023) emphasized the importance of continuous professional development for teachers, highlighting that ongoing training programs ensure teachers remain updated with the latest technological advancements and teaching methodologies. The situation in the United States offers valuable insights, where teacher training for ICT integration is a well-established practice (Brckett, 2024). According to a study by Kidega et al. (2024), extensive training programs have enabled teachers to seamlessly integrate technology into their classrooms, resulting in improved student outcomes and engagement. In India Sharma (2020) highlights the role of government initiatives in enhancing teacher training for ICT integration, noting that such programs have significantly bridged the gap

between traditional and modern teaching practices.

Well-trained teachers and oriented learners significantly improve learning outcomes in CBC. The World Bank's ReHOPE strategic framework 2018-2020 sought developmental solutions to the problems of refugees and their host communities, promoting sustainable livelihoods (Crawford (2022). The Ugandan Education Sector Strategy for Refugees aims to ensure that children, adolescents, and youth from refugee and host communities have access to sustained quality and inclusive learning opportunities annually (Crawford, 2022; Sekaggya-Bagarukayo & Oddy, 2022). Indeed, Namubiru et al. (2024) highlight the fact that trained teachers will eventually have a positive attitude towards the implementation of the Competence Based Curriculum.

In the context of refugee settlements, such as Kyaka II, the need for comprehensive teacher training is even more pronounced. Mastorillo et al. (2024) pointed out that teachers in these settings often face additional challenges, including limited resources and support. Therefore, tailored training programs that address these unique challenges are essential for the successful implementation of CBC through ICT integration.

Learner Orientation for ICT Integration in Competence-Based Curriculum

Learner orientation is another critical factor in the successful integration of ICT in CBC. Early exposure to digital technologies helps develop digital literacy, which is essential for creating and sharing beneficial information. Pupiales Farinango (2024) highlighted that familiarizing learners with digital technologies at an early stage significantly improves their comfort and proficiency in using these tools for educational purposes. In Kenya, Mohamed (2023) revealed that CBC implementation in primary schools enhanced critical thinking and problem-solving abilities, largely due to effective learner orientation towards ICT. Similarly, in Rwanda, Dneprovskaya et al. (2024) demonstrated that

well-oriented learners showed remarkable improvement in digital literacy, which positively impacted their overall academic performance.

Andrew (2021) reported that CBC effectively promotes entrepreneurial skills in secondary schools, emphasizing the role of learner orientation in this success in Tanzania. Almufarreh and Arshad (2023) observed that early exposure to ICT in education significantly boosts students' confidence and competence, leading to better academic outcomes. India's experience, as noted by Kaswan et al. (2024) shows that learner orientation towards ICT from a young age has been instrumental in preparing students for the demands of the modern workforce. This underscores the importance of integrating ICT into education systems to develop a digitally literate generation.

Learner orientation is critical for the successful integration of ICT in CBC. Refugee learners need to be familiar with digital technologies and comfortable using them for educational purposes. Early exposure to digital technologies helps develop digital literacy, essential for creating and sharing beneficial information (Mokoro, 2020). Studies have shown that education programs and interventions in refugee communities have successfully enhanced the livelihood of refugees, providing opportunities for learning and building skills (Ssimbwa et al., 2023). In refugee settlements, such as Kyaka II, learner orientation is crucial for the successful implementation of CBC. Mizza (2023) and Gallagher et al. (2024) posit that learners in refugee settings often have limited exposure to digital technologies, making orientation programs vital for their academic and future success.

Challenges and Opportunities in Teacher Training and Learner Orientation

Despite the benefits, several challenges exist in teacher training and learner orientation for ICT integration in CBC. The demanding nature of CBC in terms of time and resources has been highlighted by Kembabazi (2023), emphasizing the need for more comprehensive and continuous

training programs for teachers. Many teachers and learners lack the necessary ICT literacy, which hampers the effective implementation of CBC. Inadequate data from host community schools, low EMIS enrollment, inadequate resources, and prioritization of food affecting learner attendance rates in schools are some of the challenges (Crawford, 2022). Addressing these challenges is essential for the successful implementation of CBC with a focus on ICT integration in refugee settings.

In Kenya, a study by Manyasa (2022) identified the lack of infrastructure and resources as significant barriers to effective ICT integration in schools. Similarly, in Rwanda, Ndiokubwayo et al. (2020) pointed out that inadequate training programs and limited access to digital tools hinder the successful implementation of CBC. Tanzania faces similar challenges, with Ngodu et al. (2024) noting that the high cost of ICT tools and insufficient training programs are major obstacles. In a Ugandan setting in Gulu, Kidega et al. (2024) highlighted the need for continuous professional development to keep up with rapid technological advancements.

Udo et al. (2024) discussed the disparities in access to ICT tools and training programs between urban and rural areas, emphasizing the need for equitable distribution of resources and training opportunities. In refugee settlements like Kyaka II, these challenges are exacerbated by the limited availability of resources and support. Almazroa & Alotaibi (2023) stressed the importance of tailored training programs that address these unique challenges, highlighting the potential for ICT to transform education in these settings if adequately supported.

Summary of Literature review and Research gap Identified

Despite the numerous studies highlighting the importance of teacher training for ICT integration in the Competence-Based Curriculum (CBC), significant gaps remain in the practical application of these programs, especially in resource-constrained settings such as refugee settlements.

Many studies, such as those by Kembabazi (2023) and Mpumuje (2024), focus on general training needs without addressing the unique challenges faced by teachers in these environments, such as limited resources and support. This study addresses this gap by providing tailored training programs specifically designed for teachers in refugee settlements, ensuring they are equipped with the necessary skills and resources to effectively integrate ICT into their teaching practices.

Similarly, while the importance of learner orientation towards ICT in CBC has been well-documented, there is a lack of focus on how these orientations can be effectively implemented in refugee contexts where students often have limited exposure to digital technologies. Research by Mohamed (2023) and Dneprovskaya et al. (2024) highlights the benefits of early exposure to ICT, yet they do not account for the distinct obstacles faced by refugee learners. This study bridges this gap by implementing comprehensive orientation programs that are tailored to the specific needs of refugee students, ensuring they become comfortable and proficient in using digital tools for their education.

Moreover, the challenges of inadequate infrastructure, resources, and continuous support for both teachers and learners in refugee settlements have been highlighted in several studies, such as those by Manyasa (2022) and Kim & Shin (2023). However, these studies often fall short of providing practical solutions to these issues. This study not only identifies these challenges but also offers actionable solutions by implementing structured training and orientation programs, providing ongoing support, and advocating for the equitable distribution of resources. By doing so, the study demonstrates a viable pathway for enhancing the effective implementation of CBC through ICT integration in refugee settlements, thereby filling a critical research gap and offering a model that can be replicated in similar contexts.

METHODOLOGY

The methodology employed for this study was Participatory Action Research (PAR) where training of teachers was offered and learners oriented with a specific focus on two secondary schools within the Kyaka II Refugee Settlement. Data was collected using surveys physically distributed to 89 teachers and 366 students to report on ICT use in practice. Data was analyzed to provide percentages that were used to help in the interpretation. This comprehensive methodology aimed to provide a detailed understanding of the role of teacher training and learner orientation in ICT integration for CBC implementation within the refugee settlement context. Data analysis encompassed both quantitative. Data collected using the surveys was statistically to derive descriptive percentages.

Both schools had a total of 89 teachers, and all were included in the survey because the population was under 100, following Althubaiti's (2023) guideline that all members should be surveyed if the population is less than 100. For the students, the study focused on senior three and senior four due to their exposure to the Competence-Based Curriculum (CBC). The sample size was determined using the Krejcie & Morgan (1970) table, resulting in a total of 366 student respondents. Specifically, School A had 380 students, with 191 randomly selected for the sample, and School B had 320 students, with 175 included in the sample. Thus, the study's sample sizes were 366 students and 89 teachers. Data was analyzed using SPSS (version 28) to generate descriptive statistics that were used to draw inferences. Ethical considerations were paramount throughout the study. Informed consent was obtained from participants, and measures were in place to ensure confidentiality and anonymity. Limitations of the study included potential biases in self-reported survey data, challenges in generalizing findings beyond the selected case study sites, and constraints in accessing comprehensive historical data on CBC implementation in the refugee settlement.

FINDINGS

Introduction

This chapter presents the findings from the study on the implementation of the Competence-Based Curriculum (CBC) in Kyaka II refugee settlement in Uganda, focusing on teacher training for ICT integration, learner orientation, and the impact on teaching and learning. The findings are organized into subheadings; Teacher Training for ICT Integration, ICT Usage in Teaching, Learner Orientation for ICT Integration, and Challenges and Opportunities.

Teacher Training for ICT Integration

The study revealed that the majority of teachers have received some form of training on ICT integration for teaching. Specifically, 96.6% of teachers reported having received training, with the majority having undergone 10-20 hours of ICT training in the past year. This aligns with the findings of Mpumuje (2024) in Rwanda, where significant improvements in ICT integration were noted following teacher training programs. However, the effectiveness of these training programs varied. While 70.8% of teachers rated the training as effective and 21.3% as very effective, confidence levels in using ICT tools post-training were moderate. Only 21.3% felt very or extremely confident, suggesting a need for more comprehensive and ongoing professional development, similar to the recommendations by Chachage & Thakrar (2023) in Tanzania.

Teachers predominantly faced challenges related to the lack of ICT equipment (61.8%) and poor internet connectivity (19.1%), which hindered their ability to integrate ICT effectively into their teaching. These findings resonate with Manyasa's (2022) study in Kenya, which identified similar barriers. Moreover, insufficient training and lack of technical support were also highlighted, underscoring the necessity for continuous support and resource allocation to ensure effective ICT integration in CBC (Almazroa & Alotaibi, 2023).

ICT Usage in Teaching

Despite the high levels of training, the actual usage of ICT tools in teaching was limited. Only 3.4% of teachers reported using ICT tools often, and a mere 1.1% always used them in their teaching practices. This limited usage may be attributed to the confidence levels of teachers and the challenges they face. The most frequently used ICT tools were computers (58.4%) and tablets (31.5%), with minimal use of projectors (2.2%) and educational software (1.1%). This is consistent with Kembabazi's (2023) findings in Kenya, which highlighted the need for more practical and resource-specific training programs.

The integration of ICT tools has had a positive impact on teaching practices, with 47.2% of teachers reporting significant improvements and 16.9% reporting drastic improvements. This aligns with Kidega et al. (2024), who found that extensive training programs enabled teachers to integrate technology effectively, leading to improved student outcomes and engagement.

Learner Orientation for ICT Integration

The findings indicate a high level of learner orientation towards ICT, with 94.0% of students having received some form of training or orientation on using ICT for learning. This early exposure is crucial, as emphasized by Pupiales Farinango (2024), for developing digital literacy and enhancing academic performance. However, confidence levels varied, with 44.8% of students feeling slightly confident and only 3.3% feeling very confident in using ICT tools for their studies. This suggests a need for more comprehensive orientation programs that not only introduce students to ICT but also build their proficiency and confidence in using these tools effectively.

Students generally showed a positive attitude towards ICT, with 44.3% agreeing and 37.4% strongly agreeing that using ICT has made learning more interesting. This is in line with the findings of Mohamed (2023) in Kenya, where CBC implementation enhanced critical thinking and problem-solving abilities due to effective learner orientation towards ICT. In terms of

academic impact, 39.1% of students reported that ICT usage moderately improved their understanding of subjects, while 12.3% noted significant improvements.

Findings indicated a correlation coefficient of ($r = 0.54$) reflecting a moderate positive relationship between receiving ICT training and the perceived impact of ICT integration on teaching practices. This value indicates that teachers who have undergone ICT training tend to report more significant improvements in their teaching practices due to ICT integration.

Challenges and Opportunities

Several challenges were identified in both teacher training and learner orientation for ICT integration in CBC. The most significant challenge reported by both teachers and students was poor internet connectivity, affecting 19.1% of teachers and 50.5% of students. This was followed by the lack of ICT equipment, reported by 61.8% of teachers and 24.3% of students. These challenges are consistent with those highlighted

by Manyasa (2022) and Ndiokubwayo et al. (2020), indicating a need for substantial investment in infrastructure and resources.

Support from the school administration was also a critical factor, with only 28.1% of teachers feeling they had adequate support for ICT integration. This lack of support could hinder the effectiveness of ICT integration and reduce the potential benefits highlighted by Kidega et al. (2024). For students, 47.5% disagreed that they had enough support from their teachers to use ICT in their studies, indicating a gap that needs to be addressed through better training and resource allocation.

Opportunities exist in addressing these challenges through tailored training programs, continuous professional development, and equitable distribution of resources. As suggested by Almazroa & Alotaibi (2023), providing ongoing support and addressing the unique challenges faced by teachers and learners in refugee settlements can significantly enhance the effective implementation of CBC through ICT integration.

Table 1: Responses of Teachers

Section	Item	Measure	Freq (f)	%
Basic Information	What is your highest level of education?	Diploma	39	43.8
		Bachelor's Degree	48	53.9
		Master's Degree, and above	2	2.3
	How many years have you been teaching?	Less than 1 year	16	18.0
		1-3 years,	33	37.1
		4-6 years,	25	28.1
		7-10 years,	11	12.4
		More than 10 years	4	4.5
Teacher Training	Have you received any training on ICT integration for teaching?	Yes	86	96.6
		No	3	3.4
	If yes, how many hours of ICT training have you received in the past year?	Less than 10 hours,	12	13.5
		10-20 hours,	43	48.3
		21-30 hours,	23	25.8
		More than 30 hours	8	9.0
	Rate the effectiveness of the ICT training you received in preparing you to integrate ICT into your teaching.	Very ineffective	0	0.0
		Ineffective	1	1.1
		Neutral	3	3.4
		Effective	63	70.8
		Very effective	19	21.3
		Not confident at all	6	6.7
		Slightly confident	30	33.7

ICT Usage in Teaching	To what extent do you feel confident in using ICT tools for teaching after the training?	Moderately confident	31	34.8
		Very confident	17	19.1
		Extremely confident	2	2.2
	How often do you use ICT tools in your teaching?	Never	2	2.2
		Rarely	37	41.6
		Sometimes	46	51.7
		Often	3	3.4
		Always	1	1.1
	Which ICT tools do you use most frequently in your classroom? (Select all that apply)	Computers	52	58.4
		Tablets	28	31.5
		Projectors	2	2.2
		Interactive whiteboards	0	0.0
		Educational software	1	1.1
		Internet resources	4	4.5
	What are the main challenges you face when integrating ICT into your teaching? (Select one that most applies)	Lack of ICT equipment	55	61.8
		Insufficient training	9	10.1
		Poor internet connectivity	17	19.1
		Lack of technical support	5	5.6
		Time constraints	1	1.1
		Student engagement issues	0	0.0
Learner Orientation	Have your students received any orientation on using ICT for learning?	Yes	82	92.1
		No	7	7.9
	To what extent do your students show interest in using ICT tools for learning?	Not interested at all	0	0.0
		Slightly interested	8	9.0
		Moderately interested	13	14.6
		Very interested	48	53.9
Impact on Teaching and Learning	How has ICT integration affected your teaching practices?	Extremely interested	18	20.2
		No impact	0	0.0
		Slightly improved	4	4.5
		Moderately improved	26	29.2
		Significantly improved	42	47.2
	ICT integration has influenced student engagement and learning outcomes	Drastically improved	15	16.9
		Strongly disagree	0	0.0
		Disagree	0	0.0
		Neutral	12	13.5
		Agree	41	46.1
		Strongly agree	34	38.2
Support and Resources	Do you feel you have adequate support from the school administration for ICT integration?	Strongly disagree	17	19.1
		Disagree	38	42.7
		Neutral	9	10.1
		Agree	19	21.4
		Strongly agree	6	6.7

Source: Primary Data, 2024

Table 2: Responses by Students

Section	Item	Measure	Freq (f)	%
Learner Orientation	Have you received any training or orientation on how to use ICT for learning?	Yes	344	94.0
		No	12	3.3
		Not confident at all	68	18.6

	If yes, How confident do you feel using ICT tools for your studies?	Slightly confident	164	44.8
		Moderately confident	97	26.5
		Very confident	12	3.3
	Using ICT has made learning more interesting	Strongly Disagree	7	1.9
		Disagree	13	3.6
		Neutral	25	6.8
		Agree	162	44.3
		Strongly Agree	137	37.4
Impact on Learning	How has the use of ICT tools affected your understanding of subjects? ,	No impact	33	9.0
		Slightly improved	111	30.3
		Moderately improved	143	39.1
		Significantly improved	45	12.3
		Drastically improved	12	3.3
	How has the use of ICT tools influenced your engagement in class?	No influence	9	2.5
		Slightly improved	147	40.2
		Moderately improved	118	32.2
		Significantly improved	63	17.2
		Drastically improved	7	1.9
Support and Resources	Do you feel you have enough support from your teachers to use ICT in your studies?	Strongly disagree	78	21.3
		Disagree	174	47.5
		Neutral	32	8.7
		Agree	66	18.0
		Strongly agree	16	4.4
Challenges	What are the main challenges you face in regard to ICT for learning? (Select one that most applies)	Lack of ICT equipment	89	24.3
		Poor Internet Connectivity	185	50.5
		Lack of technical support	68	18.6
		Time constraints	1	0.3
		Difficulty understanding how to use ICT	23	6.3

Source: Primary Data, 2024.

DISCUSSION OF FINDINGS

This chapter discusses the findings of the study on the implementation of the Competence-Based Curriculum (CBC) in refugee settlements in Uganda, focusing on teacher training for ICT integration, learner orientation, and the impact on teaching and learning. The discussion draws on the presented data and existing literature to provide a comprehensive analysis based on the objectives of the study.

The findings revealed that a significant majority of teachers had received training on ICT integration, with most undergoing 10-20 hours of training in the past year. This high level of training aligns with the findings of Mpumuje (2024) in Rwanda, which demonstrated that teacher training significantly improved the integration of ICT in primary schools, leading to better student performance and engagement. However, despite

the extensive training, there were varying levels of confidence among teachers in using ICT tools for teaching, suggesting that the current training programs may not be fully effective in building confidence. This echoes the concerns raised by Kembabazi (2023) in Kenya, who emphasized the necessity for more comprehensive and continuous training programs. Continuous professional development, as highlighted by Chachage & Thakrar (2023) in Tanzania, is crucial to ensure that teachers remain updated with the latest technological advancements and teaching methodologies.

The main challenges faced by teachers, including the lack of ICT equipment and poor internet connectivity, are significant barriers to effective ICT integration. These challenges are consistent with those identified by Manyasa (2022) in Kenya and Ndiokubwayo et al. (2020) in Rwanda,

indicating a widespread issue in the region. Addressing these challenges through improved infrastructure and resource allocation is essential for enhancing ICT integration in CBC. The study found that the actual usage of ICT tools in teaching was limited, with only a small proportion of teachers using them often or always. This limited usage contrasts with the high level of training received and suggests that additional factors, such as confidence levels and the availability of resources, play a crucial role in ICT integration. The findings are consistent with Kembabazi's (2023) observations in Kenya, where the need for practical and resource-specific training was emphasized. Despite the limited usage, ICT integration has positively impacted teaching practices. A significant proportion of teachers reported that ICT integration had improved their teaching practices, aligning with the findings of Kidega et al. (2024) in Gulu and Brackett (2024) in the USA, where extensive training programs enabled teachers to integrate technology effectively, leading to improved student outcomes and engagement.

The high level of learner orientation towards ICT, with most students having received some form of training or orientation, is a positive finding. Early exposure to digital technologies is crucial for developing digital literacy, as highlighted by Pupiales Farinango (2024). However, the varying confidence levels among students indicate that the current orientation programs may not be sufficient for building proficiency and confidence. Students' positive attitude towards ICT, and their agreement that ICT has made learning more interesting, is consistent with Mohamed's (2023) findings in Kenya. The positive impact of ICT on students' understanding of subjects and engagement in class further supports the benefits of early and effective learner orientation towards ICT, as noted by Dneprovskaya et al. (2024).

The correlation coefficient ($r = 0.54$) translates to an (r^2) value of approximately 0.2916, or 29.2%. This represents the proportion of variance in the perceived impact of ICT integration on teaching practices that can be explained by the receipt of

ICT training. Thus, while ICT training has a significant effect, it is only one of several factors that contribute to the overall improvement in teaching practices through technology integration in the implementation of the CBC. The positive correlation suggests that ICT training plays a meaningful role in enhancing teaching effectiveness, with trained teachers experiencing more noticeable benefits in their instructional methods. This moderate correlation underscores the importance of providing targeted ICT training to educators, as it appears to be associated with a substantial improvement in how they utilize technology to enhance their teaching.

The study identified several challenges in both teacher training and learner orientation for ICT integration in CBC. Poor internet connectivity and lack of ICT equipment were the most significant challenges, affecting both teachers and students. These challenges are consistent with the findings of Manyasa (2022) and Ndiokubwayo et al. (2020), indicating a need for substantial investment in infrastructure and resources. Support from the school administration was also a critical factor. Only a small proportion of teachers felt they had adequate support for ICT integration, which could hinder the effectiveness of ICT integration and reduce the potential benefits. This finding aligns with Kidega et al. (2024), who emphasized the need for continuous professional development and support.

Opportunities exist in addressing these challenges through tailored training programs, continuous professional development, and equitable distribution of resources. Almazroa & Alotaibi (2023) stressed the importance of ongoing support and addressing the unique challenges faced by teachers and learners in refugee settlements. Implementing structured training and orientation programs, providing ongoing support, and advocating for the equitable distribution of resources are essential for enhancing the effective implementation of CBC through ICT integration.

Conclusion

The findings of this study highlight the pivotal role of teacher training and learner orientation in the effective implementation of the Competence-Based Curriculum (CBC) through ICT integration in refugee settlements in Uganda. The moderate positive correlation ($r = 0.54$) between ICT training and successful curriculum implementation emphasizes the need for well-structured and continuous training programs. Despite the high levels of ICT training received by teachers, their varying levels of confidence and limited practical application suggest a need for more comprehensive, resource-specific training. Students' positive attitudes towards ICT and its potential to make learning more engaging are countered by significant challenges, including poor internet connectivity, inadequate ICT equipment, and insufficient support from school administrations.

Addressing these challenges is essential to fully leverage the benefits of ICT in education. Effective ICT integration in CBC requires tailored training programs that address the unique needs of teachers and students in refugee settlements. Ensuring continuous professional development, improving infrastructure, and equitable distribution of resources are crucial steps in overcoming these barriers. By implementing these strategies, refugee settlements can create a learning environment where both educators and learners are well-equipped and confident in utilizing ICT tools, leading to enhanced teaching practices and improved student outcomes.

Recommendations

Based on the comprehensive analysis of teacher and student responses regarding ICT integration within the Competence-Based Curriculum (CBC), several key recommendations emerge to address the identified challenges and enhance the overall effectiveness of ICT in education. These recommendations focus on enhancing professional development, improving infrastructure, strengthening institutional support, increasing student access and training, and

establishing robust monitoring and evaluation systems. Implementing these recommendations will significantly contribute to the successful integration of ICT in CBC, ultimately improving teaching and learning outcomes.

- Provide continuous and comprehensive ICT training for teachers, focusing on practical skills and confidence-building. Regular workshops and follow-up support should be implemented to ensure sustained competency in using ICT tools.
- Invest in upgrading ICT infrastructure in schools, including providing sufficient ICT equipment and ensuring reliable internet connectivity. Prioritize equipping classrooms with diverse ICT tools such as computers, tablets, and projectors.
- Develop robust institutional support systems within schools, including technical support staff and administrative backing. Encourage school leadership to actively promote and facilitate ICT integration in teaching practices. Foster collaboration among teachers for effective ICT use.
- Ensure that all students have access to ICT tools by providing necessary resources and establishing dedicated ICT periods. Implement orientation programs to enhance students' ICT skills and confidence in using digital learning materials.

REFERENCES

- Aldheleai, Y. M., Baki, R., Tasir, Z., & Alrahmi, W. (2019). What hinders the use of ICT among academic staff at Yemen's public universities? *International Journal of Humanities and Innovation (IJHI)*, 2(1), 7-12.
- Almazroa, H., & Alotaibi, W. (2023). Teaching 21st-century skills: Understanding the depth and width of the challenges to shape proactive teacher education programmes. *Sustainability*, 15(9), 7365.
- Almufarreh, A., & Arshad, M. (2023). Promising emerging technologies for teaching and

- learning: Recent developments and future challenges. *Sustainability*, 15(8), 6917.
- Andrew, K. (2021). *The role of competency-based curriculum on creation of employability skills in Tanzania* (Doctoral dissertation, The Open University of Tanzania).
- Ausat, A. M. A., & Rijal, S. (2024). Education Management Strategies to Maximize the Effectiveness of Information and Communication Technology Integration in Teaching and Learning Processes. *Indo-MathEdu Intellectuals Journal*, 5(2), 1630-1641.
- Buabeng-Andoh, C. (2012). Factors influencing teachers' adoption and integration of information and communication technology into teaching: A review of the literature. *International Journal of Education and Development using ICT*, 8(1).
- Chachage, K., & Thakrar, J. (2023). *Teacher Continuous Professional Development in Tanzania: Lessons Learnt*. EdTech Hub.
- Crawford, N. (2022). *Comprehensive Refugee Response Framework UCRRP, 2022-2023: Progress in Uganda*. ODI.
- Emezirinwune, M., Babatunde, D., Emezirinwune, D., & Denwigwe, I. (2024). The role of information and communication technologies in university education: taxonomies, perspectives, and challenges. *Reading Time*, 2024, 04-10.
- FCA. (2022). Fin Church Aid Annual report, 2021. https://www.kirkonulkomaanapu.fi/wp-content/uploads/2022/07/Vuosikertomus2021_ENG_accessible.pdf
- Gallagher, M., Nanyunja, S., Akello, M., Mulondo, A., & Miranda, J. J. (2024). Hopeful futures for refugees in higher education: cultivation, activation, and technology. *International Journal of Educational Technology in Higher Education*, 21(1), 38.
- Here is the reference with FCA as the author:
- Kaswan, K. S., Dhatteval, J. S., Baghela, V. S., & Grima, S. (2024). A New Era of ICT in the Education System. In *Advanced Learning and Teaching in Higher Education in India: A Policy-technology-capacity Enabled Approach* (pp. 221-236). River Publishers.
- Kembabazi, E. (2023). The role of teacher training in ICT integration for CBC in Kenya. *Kenya Journal of Educational Research*, 12(2), 98-115.
- Kidega, C., Song, Z., Ugochinyere, I. C., James, O. A., & Ndikubwimana, F. (2024). Confronting Challenges Facing Teachers in Implementing Competency-Based Curriculum in Uganda: A Case of Secondary Schools in Gulu City. *East African Journal of Education Studies*, 7(2), 112-129.
- Kim, B. K., & Shin, S. (2023). A Refugee Local Integration Model for the Global South? Uganda's Inclusive Refugee Policies Focusing on Education. *한국아프리카학회지*, 69, 57-89.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, 30(3), 607-610.
- Manyasa, E. (2022). Assessing the impact of ICT integration policy on the equitable access to quality education in African contexts: the case of Kenya.
- Mastorillo, M., Scognamillo, A., & Ignaciuk, A. (2024). Training Refugees: Lights and Shadows in the Context of the Self-Reliance Strategy Implemented in Uganda. *The Journal of Development Studies*, 60(3), 406-431.
- Mbabazi, B. P., Micheal, T., & Abiodun, N. L. (2022). Integration of ICT in Teaching and Learning in Secondary Schools in Kigezi Region, Uganda.
- Mikrouli, P., Tzafilkou, K., & Protogeros, N. (2024). Applications and Learning Outcomes of Game Based Learning in

- Education. *International Educational Review*, 2(1), 25-54.
- Mizza, D. (2023). The Pathway to Unlocking Refugees' Learning Potential: Current Challenges and Lifelong Learning Solutions. In *Teaching Refugees and Displaced Students: What Every Educator Should Know* (pp. 139-159). Cham: Springer International Publishing.
- Mohamed, S. (2023). *An Inquiry into the Implementation of the Competency-Based Curriculum (2017) in Primary Schools in Mombasa, Kenya* (Master's thesis, Oslomet-storbyuniversitetet).
- Mohzana, M. (2024). The Impact of the New Student Orientation Program on the Adaptation Process and Academic Performance. *International Journal of Educational Narratives*, 2(2), 169-178.
- Mokoro, D. (2020). Perception of Teachers on their Preparedness for Implementation of the Competence-based Curriculum among Secondary Schools in Arumeru District, Tanzania. *East African Journal of Education and Social Sciences (EAJESS)*, 1(2), 109-117.
- Mpumuje, M. (2024). Information Communication Technology (ICT) Integration in Teaching and Learning in Selected Rural Secondary School in Burera District, Rwanda. *African Journal of Empirical Research*, 5(2), 453-461.
- Muchira, J. M., Morris, R. J., Wawire, B. A., & Oh, C. (2023). Implementing competency based curriculum (CBC) in Kenya: challenges and lessons from South Korea and USA. *Journal of Education and Learning*, 62-77.
- Namubiru, A., Kitembo, M., Kasiita, T., Kagambe, E., & Kasiita, T. (2024). Perceptions of Teachers on the Implementation of the Competence-Based Curriculum in Secondary Schools in Bundibugyo and Ntoroko Districts, Uganda. *East African Journal of Education Studies*, 7(3), 13-27.
- Nanyunja, S., Akello, M., Egwalu, R., Kompogo, M., Lugala, C., Mulondo, A., ... & Gallagher, M. (2021, December). Blended learning in refugee education: an interim report on the Foundations for All project in Kampala and Kiryandongo, Uganda. In *International Conference on e-Infrastructure and e-Services for Developing Countries* (pp. 510-526). Cham: Springer International Publishing.
- Ndihokubwayo, K., Nyirigira, V., Murasira, G., & Munyensanga, P. (2020). Is competence-based curriculum well monitored? Learning from Rwandan sector education officers. *Rwandan Journal of Education*, 5(1).
- Ngodu, A., Ndibalema, P. M., & William, F. (2024). Context-relevant strategies for ICT integration in teaching and learning science subjects in Tanzania secondary schools. *Educational Technology Quarterly*, 2024(1), 20-37.
- Opol, J. (2023). *Contribution of education to building resilience of refugee learners: a case study of primary schools in Nakivale Settlement, Isingiro District-Western Uganda* (Doctoral dissertation, Makerere University).
- Phulpoto, S. A. J., Oad, L., & Imran, M. (2024). Enhancing Teacher Performance in E-Learning: Addressing Barriers and Promoting Sustainable Education in Public Universities of Pakistan. *Pakistan Languages and Humanities Review*, 8(1), 418-429.
- Pupiales Farinango, S. M. (2024). *Digital applications for the development of listening skills in first level students at Universidad Técnica del Norte, academic period 2022-2023* (Bachelor's thesis).
- Rizana, A. F., Hediyanto, U. Y. K. S., Ramadhan, F., & Kurniawati, A. (2020). E-learning success determinants in higher education: A systematic literature review from users'

- perspective. In *IOP Conference Series: Materials Science and Engineering* (Vol. 830, No. 3, p. 032012). IOP Publishing.
- Sekaggya-Bagarukayo, D., & Oddy, J. (2022). Opportunities and Challenges to Support Out-Of-School Children and Youth through Accelerated Learning Programmes (<https://inee.org/sites/default/files/resources/ACCESS-Uganda-EN-FINAL-v3.pdf>)
- Sharma, M. (2020). Reimagining teacher education in India: A critical analysis of NEP-2020's aspirations and challenges. *International Journal of Science and Research (IJSR)*, 13(2), 1481-1485.
- Ssimbwa, P., Solomon, A., & Mawa, M. (2023). Effectiveness of the Education in Building Self-Reliance Skills among Refugee Students in Uganda. *Asian Journal of Social Sciences and Legal Studies*, 5(1), 62-74.
- Tulibaleka, P. O., Tumwesigye, K., & Nakalema, K. (2022). Protracted refugees: Understanding the challenges of refugees in protracted refugee situations in Uganda. *Journal of African Studies and Development*, 14(1), 1-11.
- Udo, W. S., Ochuba, N. A., Akinrinola, O., & Ololade, Y. J. (2024). Conceptualizing emerging technologies and ICT adoption: Trends and challenges in Africa-US contexts. *World Journal of Advanced Research and Reviews*, 21(3), 1676-1683.
- Ukpe, E. (2023). Information and Communication Technologies (ICTS) for E-Learning in Tertiary Education. *Open Journal of Social Sciences*, 11(12), 666-680.
- Velaora, C., Dimos, I., Tsagiopoulou, S., & Kakarountas, A. (2022). A game-based learning approach in digital design course to enhance students' competency. *Information*, 13(4), 177.
- Zenda, R., & Dlamini, R. (2023). Examining factors that influence teachers to adopt information and Communication Technology in rural secondary schools: an empirical study. *Education and Information Technologies*, 28(1), 815-832