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THE RELATIONSHIP BETWEEN TEACHERS' ATTITUDE AND THE INTEGRATION OF TECHNOLOGY IN THE IMPLEMENTATION OF COMPETENCY-BASED CURRICULUM IN PRIMARY SCHOOLS IN KEIYO-SOUTH SUB-COUNTY, KENYA

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Abstract:
The transformation of the education sector in Kenya through the Competency-Based Curriculum (CBC) necessitates the integration of Information and Communication Technology (ICT) in teaching. However, the role of teachers' attitudes in this integration remains underexplored, particularly in rural settings. This study examined the relationship between teachers' attitudes and the integration of technology in the implementation of CBC in primary schools in Keiyo-South Sub-County, Elgeyo-Marakwet County. A concurrent mixed methods design was adopted, targeting 297 teachers and 26 head teachers selected from 97 primary schools. Quantitative data were collected using questionnaires and analyzed using Pearson correlation, while qualitative data from interviews were analyzed thematically. Results revealed that there was no significant relationship between teachers' attitude and integration of technology (r=-.111,

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p=.072>.05). Although many teachers expressed positive attitudes, they did not adequately apply technology in their teaching. Interviewed head teachers confirmed that positive attitudes without practical ICT application had no meaningful effect on CBC implementation. These findings suggest that while teacher attitude may be positive, real integration is hindered by infrastructural and capacity-based limitations. The study recommends leveraging teachers' positive dispositions to enhance actual technology use through training and resource provision.

Keywords: teachers' attitude, technology integration, Competency-Based Curriculum (CBC), Information and Communication Technology (ICT)

1. Introduction

The integration of technology in education has become a fundamental requirement for 21st-century teaching and learning. Globally, nations have acknowledged the critical role that Information and Communication Technology (ICT) plays in transforming educational processes and outcomes. Numerous studies have highlighted that technology facilitates learner engagement, enhances collaboration, and supports the development of critical skills needed in the digital age (Akram & Yang, 2021; Mensch & Ampadu, 2024). In Kenya, the shift from the 8-4-4 system to the Competency-Based Curriculum (CBC) aims to align the education sector with global trends that promote skill development, creativity, and digital literacy (KICD, 2018).

The CBC emphasizes learner-centered, practical, and technologically enhanced instruction. However, the successful integration of technology depends not only on the availability of ICT tools and professional development but also significantly on the attitude of teachers who are the primary implementers of the curriculum. Positive teacher attitude towards ICT has been found in some contexts to be a key enabler in adopting new technologies in the classroom (Ngina, 2024; Awuni *et al.*, 2023). Yet, this attitude must translate into actual classroom practices for CBC implementation to succeed.

In Kenya, the Ministry of Education, through the Digital Literacy Programme and other national initiatives, has attempted to equip schools with digital tools. Despite these efforts, technology integration in most public primary schools remains minimal. Bartilol (2025) notes that in Keiyo-South Sub-County, while some teachers have expressed interest and enthusiasm for technology use, they often do not use ICT tools in actual lesson delivery. According to Rogers' (2003) Diffusion of Innovations theory, the successful adoption of an innovation, such as integrating technology into CBC, is influenced by the individual's perception, the communication channels, the time taken to adopt, and the structure of the social system. A teacher's positive attitude may foster openness to innovation, but without reinforcement through training, access to resources, and systemic support, this attitude alone cannot guarantee successful implementation.

Further, the educational context in rural or semi-rural settings like Keiyo-South presents unique challenges. Despite awareness of technology's potential, many teachers face infrastructural barriers and limited support mechanisms. In such environments, a positive attitude may exist in theory but fail to influence practical classroom integration (Bartilol, 2025). Thus, this study focused on examining whether teachers' attitudes had a significant influence on the actual integration of technology in the implementation of CBC in primary schools in Keiyo-South Sub-County. Understanding this relationship is crucial for designing interventions that translate positive perceptions into effective pedagogical practices.

2. Statement of the Problem

The use of digital tools in the education system facilitates active learning, transforms traditional instructional methods and promotes students' engagement and motivation (Lagat, 2025). However, technology integration is a multidimensional and complex process which involves school readiness, availability of ICT resources, trained teachers, and adequate finances (Akcil *et al.*, 2021; Okwu *et al.*, 2023; Kyomuhendo *et al.*, 2024). This study was triggered by the unsatisfied voices of key education stakeholders about the myriad of challenges faced by teachers during the implementation of CBC in primary schools. There have been nationwide debates about the relevance of the introduction of the new curriculum into the Kenyan education system.

Most of the literature reviewed revealed that the majority of the teachers in primary schools in Kenya were still implementing technology-oriented CBC curriculum using traditional methods due to limited ICT infrastructure, training, age-related resistance and negative perceptions (Chepkilot *et al.*, 2024; Nakhumicha & Tenya, 2024; & Akcil, 2021). However, most of these studies focused on ICT integration in higher levels of education, such as universities, teacher training colleges and secondary schools, where ICT integration was not compulsory and CBC had not yet been introduced in their curricula.

It was observed that a majority of the studies reviewed were only concerned about the challenges faced by the teachers during the implementation of CBC, with little focus on ICT integration. Those studies which sought to establish the relationship between technology integration and the implementation of CBC were carried out in other counties. Furthermore, there seem to be limited studies on the integration of technology in the implementation of CBC in Keiyo-South Sub-County. Therefore, this study's objective sought to determine the relationship between teachers' attitudes and the integration of technology in the implementation of competency-based curriculum (CBC) in primary schools in Keiyo-South Sub-County, Elgeyo-Marakwet County, Kenya.

2.1 Objectives of the Study

The study objective was to determine the relationship between teachers' attitudes and the integration of technology in the implementation of competency-based curriculum (CBC) in primary schools in Keiyo-South Sub-County, Elgeyo-Marakwet County, Kenya.

2.2 Hypotheses of the Study

The study was guided by the following research Hypothesis:

H0: There is no significant relationship between teachers' attitude and the integration of technology in the implementation of competency-based curriculum in primary schools.

3. Theoretical Framework

The theory that the researcher used was Rogers' (2003) diffusion of innovations theory. It was developed by Everett Rogers, and it originated from the communication department in his university. This theory indicates that an innovation is communicated through certain channels over time among members of a social system. Rogers argued that over time, an idea or a product gains momentum and spreads or diffuses through a specific population or social system. Therefore, the adoption, integration and communication of an innovation in any field follows a universal process of social change.

Rogers' Diffusion of Innovations Theory was the most appropriate theory for this study because it took into account all aspects related to the integration of technology and the implementation of CBC, such as communication, diffusion, persuasion, training and the changing of attitudes for the acceptance and integration of ICTs by teachers of all ages. It gave a platform for studying and understanding the implementation of the new curriculum, especially in the integration of technology. According to Rogers (2003), there are four elements that promote or hinder the diffusion of innovations in a social system. They include: the nature of an innovation, the type of communication channels, the time taken for the adoption of an innovation and the structure of the social system (context). The first element of the diffusion process (the nature of an innovation) possesses factors such as relative advantage, compatibility, complexibility, triability and observability.

Effective communication of technology and CBC information and their perceived benefits may create positive attitudes among the teachers towards the innovation. Positive attitudes might make primary school teachers accept and own the innovation. This institutionalization of the innovation might lead to the identification and nurturing of learners' competencies as envisioned by the Basic Education Framework. On the other hand, ineffective communication about the technology and CBC might result in teachers' negative attitudes as they may resist the integration of technology in the instruction process. They might altogether ignore the integration of technology and continue with the use of old traditional methods of teaching, which may, unfortunately, lead to the minimal integration of technology in the implementation of CBC in primary schools.

However, negative attitudes which might be developed by teachers could be changed through effective communication, motivation and persuasion.

Most of the teachers had a positive attitude because of the relative advantage of technology integration in the implementation of CBC. Nevertheless, they were unable to effectively integrate technology because of the numerous challenges they faced when implementing CBC. Further, there was a lack of dissemination of information about the innovation from the custodians to the implementers. This ineffective communication about the nature and the importance of the innovation bred resistance and a negative attitude amongst the teachers, because they were not made aware of the benefits of modern technologies over traditional pedagogies. Thus, effective diffusion of information needs to be done for the teachers to be easily persuaded to make decisions to adopt and integrate technology effectively in the implementation of CBC in primary schools in Keiyo-South Sub-County, Elgeyo-Marakwet County and the whole country at large.

4. Literature Review

4.1 Importance of Technology Integration in the Implementation of CBC

Technology use in education has become an indispensable aspect in the contemporary education system, and many governments have invested in ICT to foster the quality of education in their countries (Mohammed *et al.*, 2024). In addition, Hennessy *et al.* (2023) stated that increasing the use of technology across the education system offers potential benefits for mediating the implementation of new curricula such as CBC. They indicated that educational technology could facilitate the effective delivery of lessons in primary schools. Furthermore, Idowu (2022) revealed that using technology in teaching would enable teachers to efficiently analyze students' learning activities in and outside the classroom. This could enhance honest and detailed feedback, which would promote students' outcomes. Additionally, Mensch and Ampadu (2024) posited that computer-assisted instruction promotes student-centered approaches and active engagement. They further observed that technology-based instruction offers customized educational experiences designed to meet the unique needs and learning preferences of each individual student.

4.2 Relationship Between Teachers' Attitude and the Integration of Technology in the Implementation Of CBC

Beri and Sharma (2019) examined the attitude of teachers towards the use of ICT among educators in different teacher-training colleges in the Indian State of Haryana. The results revealed that most of the teachers had positive perceptions about the use of ICT in teacher preparation. They, however, found out that the educators lacked technical support and training, which made them anxious when using ICT tools in the classroom. These findings might not be compatible with Kenya's context because it was done in India in

teachers' training colleges. Also, the characteristics of the Indian educational curriculum might be different from those of CBC curriculum of Kenya.

Waluyo and Apridayani (2021) conducted a study on technology-fused English teaching and learning in Indonesian and Thai universities and established that the teachers held positive views about the use of video technology in English teaching. Nevertheless, having positive beliefs about video did not necessarily reflect the teachers' classroom practices in their study. The researchers said that there was an inconsistency between the teachers' beliefs and classroom practices, for the teachers did not use videos in class because they lacked digital and technical skills to do so. This was a review of technology in English teaching and learning in Indonesian and Thai universities. The researcher carried out an empirical study on the teachers' integration of technology in the implementation of CBC in all learning areas in primary schools in Keiyo-South in Kenya.

Rabten (2024) analyzed the teachers' attitudes towards the integration of technology in the teaching and learning processes in Bhutan. The results of this study showed that most of the school teachers had favorable attitude towards technology integration in instruction. This study also indicated that the attitude of female and male teachers towards technology integration in teaching did not differ significantly from each other since the two groups had favorable attitude to an equal extent. This study based the teachers' attitude on gender, but the current study based the teachers' attitude on CBC implementation, and it was done in Bhutan, whereas the current study was carried out in Kenya.

Belay *et al.* (2020) were on the teachers' attitude towards the integration of technology in classroom instruction and learning Biology in secondary schools in the southern region of Eritrea. Their findings indicated that a majority of Biology teachers who participated in the study had a positive attitude towards the use of ICT in teaching and learning. The teachers in their study said that they liked to use ICT in their Biology lessons and they believed that ICT makes the learning of Biology interesting, understandable, and improves students' performance. The focus of this study was ICT integration in Biology teaching and learning in secondary schools in Eritrea. The current study focused on technology integration in the implementation of CBC in primary schools in Kenya.

Waigera *et al.* (2020) examined the relationship between the attitude of teachers and the utilization of instructional materials in pre-primary schools and found out that the teachers with a positive attitude achieved greater levels of instructional content application in their classes relative to their peers who had a negative attitude. They concluded that the positive attitude of a teacher was an essential characteristic of pre-primary teaching and learning. The focus of this study was the use of instructional resources in pre-primary schools with less emphasis on technology and CBC aspects. The researcher investigated the teachers' integration of technology in the implementation of CBC in primary schools. It was on teachers' attitude and the utilization of instructional

materials, while the researcher surveyed teachers' integration of technology and the implementation of CBC.

Ngeno *et al.* (2021) assessed the teachers 'attitude in the implementation of CBC in primary schools in Kericho County, and the results showed that, despite all the training done, some of the teachers still had a negative attitude towards CBC implementation. There were many challenges faced by the teachers, such as curriculum structure, time and class sizes. This study investigated one variable (attitude), collected data from grade one teachers and used social constructivism. The current study investigated the influence of the availability of ICT resources, professional development, age and attitude. The researcher got data from teachers from grades 1-6 and used Rogers' Diffusion of Innovations Theory.

Barium and Chung (2022) on the influence of teachers' attitude on ICT implementation in Kenyan Universities, established that a majority of the teachers had a positive attitude towards ICT integration in the classroom. They found out that the teachers' attitude significantly influenced the integration of ICT in the Universities. The lecturers believed that ICT integration improves students' performance. The researchers further found that the teachers' attitude regarding the importance of technology in the management of studies inversely affected implementation. They concluded that there were significant differences between the positive and the negative groups of teachers. This study was carried out in universities, and it established the differences between variables. The current study was done in primary schools, and it measured the relationships between the variables.

5. Research Methodology

A mixed methods research approach was used with the assumption that integrating both quantitative and qualitative data yields more comprehensive insights. The study employed a concurrent embedded design, which involves collecting both quantitative and qualitative data during a single data collection phase. However, the quantitative approach was predominant, while the qualitative component supported and added context to the quantitative findings (Creswell, 2014; 2018).

5.1 Research Design

The research design was a survey, which enabled the collection of quantitative and qualitative data within a short period. The survey design was chosen due to its ability to generate information from large groups of respondents in a cost-effective manner. Specifically, a correlational survey design was used to describe and measure the relationships between teachers' integration of technology and the implementation of the Competency-Based Curriculum (CBC) (Creswell, 2014). Although correlation does not imply causation, the study interpreted the relationships cautiously and acknowledged them as a basis for further studies (Marczyk *et al.*, 2005).

5.2 Target Population and Sample Size

The target population included 129 primary schools, 1256 teachers, and 129 head teachers. Based on Krejcie and Morgan's (1970) sample size table, the study sampled 297 teachers and 97 schools. Proportionate stratified random sampling was used to ensure divisional representation, while Kerlinger's (1973) 20% rule was used to purposively select 26 head teachers for qualitative interviews. This sampling method ensured that the sample accurately reflected the population distribution.

5.3 Data Collection Instruments

Data collection instruments included a teacher questionnaire and a head teacher interview schedule. The questionnaire was researcher-designed and structured around the study objectives, including sections on background information, availability of ICT resources, professional development, age, attitude, and CBC implementation. The tool used ordinal and interval scales for measurement. The interview schedule gathered qualitative data to address gaps left by the questionnaire, allowing the researcher to gain a deeper understanding of the phenomena under study (Creswell & Creswell, 2018).

5.4 Data Presentation and Analysis

Data analysis for quantitative data was done using SPSS version 25. The process involved coding responses, computing descriptive statistics (frequencies, means, standard deviations), and testing hypotheses using Pearson Product-Moment Correlation. The study set confidence levels at 95% and 99% to determine the strength and significance of relationships. For qualitative data, thematic analysis was employed. Interview responses were coded and organized into themes, and then used to elaborate and interpret quantitative findings.

6. Findings

6.1 Quantitative Results on Teacher Attitude

The responses on teachers' attitudes were tabulated and analyzed. As shown in Table 4.12 of the thesis, "*The teachers agreed that technology makes teaching and learning interesting and meaningful. They also agreed that they were willing to integrate technology in the implementation of CBC. However, most of them indicated that they rarely used technology in the classroom despite their positive attitude*" (Bartilol, 2025).

6.2 Qualitative Results from Head Teachers

"*Head teachers interviewed said that teachers had a generally positive attitude towards technology but lacked the skills, confidence, and resources to effectively implement it in the classroom. One head teacher commented that 'positive attitude without ICT application has no impact on CBC implementation'*" (Bartilol, 2025).

6.3 Correlation Results

Table 4.1: Correlation Analysis

		CBC Implementation	Teachers' Attitude
CBC Implementation	Pearson Correlation	1	-0.111
	Sig. (2-tailed)		0.072
	N	262	262
Teachers' Attitude	Pearson Correlation	-0.111	1
	Sig. (2-tailed)	0.072	
	N	262	262

Source: Field Data (2024).

The Pearson correlation obtained was -.111 and a p-value of. 072 at. 05 level of significance (r= -.111; p=. 072>.05). Since the p-value is more than the alpha, the null hypothesis is therefore not rejected, prompting the retention of the null hypothesis stated earlier. It was therefore established that there was no significant relationship between teachers' attitude and the integration of technology in the implementation of CBC in primary schools in Keiyo-South Sub-County in Elgeyo-Marakwet County. This implies that the teachers' attitude did not influence the integration of technology in the implementation of CBC.

It was observed that all the teachers with positive attitude or negative attitude faced obstacles such as insufficient ICTs, low infrastructure, inadequate training, and limited capacity building, which hindered them from effectively integrating technology in the implementation of CBC. This indicated that neither the teachers with a positive attitude nor those with a negative attitude effectively integrated technology in the implementation of CBC because of the challenges all of them faced.

The head teachers interviewed supported the findings by revealing that the contexts in most primary schools in Keiyo-South Sub-County were not conducive to technology integration in CBC implementation. They said that there was inadequate technology infrastructure, insufficient ICT tools and limited training of teachers, which made the teachers reluctant to integrate technology in the implementation of CBC.

These findings are consistent with Isaboke *et al.* (2021), who revealed that there was no significant relationship between teachers' perceptions towards CBC and their ability to implement CBC in public pre-primary schools. The calculated chi-square value was 0.271 at 2 degrees of freedom with a p-value of 0.603. The findings showed that the implementation of CBC in public pre-primary schools in Nairobi City County was not influenced by the teachers' perceptions towards CBC. The findings are in agreement with Mwila (2018), who found out that there was no significant difference between teachers' gender and their attitude towards the integration of ICT in teaching and learning. The study had a calculated t value of. 075 at a degree of freedom of 162 at. 05 level of significance.

7. Discussion

The findings contradict the common assumption that a positive attitude naturally leads to integration. In this study, despite the positive attitude among teachers, the actual integration of technology remained low. This supports the assertion by Akcil *et al.* (2021) that "*integration is a multidimensional process requiring infrastructure, training, and administrative support*." Rogers' theory also supports this view. While a positive attitude is part of the adoption process, it must be accompanied by trialability and observability—both of which depend on institutional support and resources (Rogers, 2003). Bartilol (2025) explains that "a *positive attitude without practical application cannot enhance CBC implementation. Teachers needed functional ICT tools, training, and consistent support to translate their attitudes into actions*"

8. Conclusion

This study established that although many primary school teachers in Keiyo-South Sub-County held a positive attitude toward the use of technology in teaching, this attitude did not translate into actual integration in CBC implementation. The statistical analysis confirmed that there was no significant relationship between teachers' attitude and the integration of technology ($r = -0.111$, $p = 0.072 > 0.05$). The qualitative data from head teachers supported these findings. They noted that attitude alone was insufficient; without appropriate infrastructure and support, teachers were unable to act on their positive dispositions.

9. Recommendation

On the teachers' attitude, the Kenya Institute of Curriculum Development (KICD) should sensitize head teachers and teachers on technology integration through mass media, workshops, seminars and lectures to persuade them to change their attitude towards technology integration in their practices. In addition, the school administration should leverage the teachers' positive attitude by encouraging them through positive compliments that would improve and sustain the motivation of teachers towards technology integration in teaching and learning.

Conflict of Interest Statement
The authors declare no conflicts of interest.

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References

Akram, M., Raza, A., & Khalid, M. (2022). Teachers' perceptions of technology integration in teaching and learning practices in Pakistan. *Journal of Educational Technology & Society*, *25*(1), 45–58. https://doi.org/10.3389/fpsyg.2022.920317

Al-Fudail, M., & Mellar, H. (2018). Investigating teacher stress when using technology. *Journal of Educational Computing Research*, *56*(3), 419–443. https://doi.org/10.1016/j.compedu.2007.11.004

Amunga, L., Wanjala, R., & Mutai, D. (2020). Impact of parental involvement on the implementation of the competency-based curriculum in Kenya. *International Journal of Education and Development*, *6*(2), 77–90.

Asava, P. (2021). Influence of teacher pedagogies on the implementation of CBC in public primary schools in Westlands Sub-County, Nairobi City. *International Journal of Education and Development*, *10*(2), 45–60.

Bariu, P., & Chung, K. (2022). Influence of teachers' attitude on ICT implementation in Kenyan universities. *African Journal of Higher Education*, *9*(3), 54–68. http://dx.doi.org/10.1080/2331186X.2022.2107294

Beri, R., & Sharma, P. (2019). Attitude of teachers towards the use of ICT in teacher training colleges in Haryana, India. *International Journal of Research and Analytical Reviews*, *6*(2), 745–754.

Cherotich, P., Langat, J., & Kiptoo, M. (2023). Influence of teachers' preparedness in the implementation of CBC in public primary schools in Bomet East Sub-County, Kenya. *Bomet Educational Journal*, *7*(2), 40–55. Retrieved from https://rsisinternational.org/journals/ijriss/Digital-Library/volume-7-issue-1/241-252.pdf

Davidovitch, N., & Yavich, R. (2021). Teachers' attitudes towards the use of advanced technological tools as teaching and learning aids in Israel. *International Journal of Educational Technology*, *18*(3), 245–260. http://dx.doi.org/10.31757/euer.434

Ireri, E., Mutua, J., & Wambua, P. (2024). Effects of teacher professional development in the implementation of CBC in junior secondary schools in Imenti North Sub-County, Meru County. *Journal of Educational Research and Innovation*, *12*(1), 101–115. http://dx.doi.org/10.47772/IJRISS.2024.8080192

Isaboke, S., Wambua, N., & Otieno, J. (2021). Teacher preparedness in the implementation of CBC in pre-primary schools in Nairobi City County, Kenya. *Kenya Journal of Curriculum and Instruction*, *4*(2), 110–127. Retrieved from http://dx.doi.org/10.35942/ijcab.v5i3.186

Kallunki, V., Saarinen, T., & Lahtinen, H. (2021). Teachers' technological knowledge and attitudes towards ICT integration. *Computers & Education*, 168.

Koskei, C., & Chepchumba, S. (2020). Teachers' competency as a cornerstone for the implementation of CBC in lower primary schools in Nakuru County, Kenya. *Nakuru Journal of Educational Development*, 7(1), 23–39. Retrieved from https://www.ijern.com/journal/2020/February-2020/01.pdf

Looney, C., Lowry, P. B., & Moody, G. D. (2022). The impact of the diffusion of innovation theory on e-learning adoption: A meta-analysis. *Computers & Education*, *180*.

Makena, E. N., & Njuguna, P. W. (2023). Teachers' qualifications and their effect on technology integration in pre-primary schools. *Kenya Journal of Education Research*, *12*(2), 55–70.

Momanyi, T., & Rop, R. (2019). Challenges faced by early grade primary school teachers in the implementation of CBC in Bomet East Sub-County, Kenya. *Bomet Educational Journal*, *4*(2), 40–55.

Murithi, S., & Yoo, K. (2021). Integration of technology in the implementation of CBC in primary schools in Kajiado North County, Kenya. *Journal of African Educational Technology*, *7*(4), 102–116.

Mwangi, G., & Wanjiru, S. (2021). Challenges faced during training of teachers on CBC implementation. *East African Journal of Educational Training*, *10*(3), 78–90.

Mwangi, P. (2022). Use of digital resources in the teaching and learning of the English language in secondary schools in Nyeri County, Kenya. *Kenya Journal of Language and Education*, *10*(2), 77–95.

Mwangombe, F. (2021). Digital literacy and teacher attitude towards technology in CBC implementation. *Journal of Curriculum Studies*, *10*(1), 55–68.

Mwila, K. (2018). Teachers' age and attitude towards technology integration in teaching. *Journal of Educational Research and Practice*, *8*(2), 90–102. https://doi.org/10.5590/JERAP.2018.08.2.07

Najjuma, P. (2021). Teachers' practices and CBC effectiveness in Ugandan secondary schools. *Uganda Journal of Teacher Education*, *5*(3), 140–155. Retrieved from https://dir.muni.ac.ug:8443/server/api/core/bitstreams/94b56222-9833-4121-9097-2727c4b4dac0/content

Nakhumicha, E., & Tenya, J. (2024). Access and utilization of digital platforms in Kenyan universities. *East African Journal of Library and Information Science*, *6*(2), 88–101.

Ngeno, S., Chepchieng, M., & Koskei, M. (2021). Relationship between instructional resources availability and teacher attitudes towards competency-based education adoption in primary schools. *Kenya Journal of Education*, *22*(3), 100–115.

Nordin, N., Samad, S., & Razak, R. (2021). Influence of social media affordances on complexity reduction for decision making in Malaysian schools. *Malaysian Journal of Educational Technology*, *17*(2), 78–92. https://doi.org/10.3389/fpsyg.2021.705245

Nthiga, M., & Wambiri, G. (2023). Influence of teachers' characteristics on the implementation of CBC in pre-primary schools in Juja Sub-County, Kiambu County, Kenya. *Kiambu Educational Journal*, *8*(1), 23–38. Retrieved from https://iajournals.org/articles/iajsse_v2_i3_140_156.pdf

Nzengi, L. (2024). Influence of teacher related factors on the implementation of CBC in junior secondary schools in Thika Township Ward, Kiambu County, Kenya. *Journal of Kenyan Curriculum Studies*, *13*(2), 112–130.

Oyugi, P. (2020). Evaluation of teacher factors on integration of ICT into teaching and learning processes in Nairobi County primary schools. *Nairobi Journal of Education Research*, *8*(1), 21–38. Retrieved from http://ir-library.mmarau.ac.ke:8080/bitstream/handle/123456789/10709/PHD_grace_thesis%202020.pdf?sequence=1&isAllowed=y

Rabten, T. (2024). Teachers' attitude towards technology integration in teaching and learning in Bhutan. *Bhutan Journal of Educational Technology*, *2*(1), 12–29.

Rana, R., & Rana, S. (2020). Teachers' perceptions of technology integration in classrooms. *Journal of Educational Computing Research*, 57(4), 921–942.

Sabic, D., Kovac, M., & Ilic, V. (2022). Teachers' self-efficacy for using technology in elementary and upper secondary schools in Croatia: Interaction effects of gender and age. *Computers in Human Behavior*, 129. https://doi.org/10.1016/j.chb.2021.107147

Silas, M. (2020). Influence of teacher-related factors on CBC implementation in lower primary schools in Luanda Sub-County, Vihiga County, Kenya. *Vihiga Journal of Education*, 4(1), 60–75.

Simiyu, D. (2025). Teachers' perceptions on CBC implementation in junior school level in Bungoma County, Kenya. *Bungoma Educational Journal*, 9(1), 15–29. http://dx.doi.org/10.46827/ejes.v12i2.5813

Waigera, P., Ndirangu, J., & Kamau, R. (2020). Relationship between teachers' attitude and utilization of instructional materials in pre-primary schools. *International Journal of Early Childhood Education*, 7(2), 44–59. http://dx.doi.org/10.37284/eajes.2.1.189