Perceived challenges in implementing the Tanzania's 2023 revised competency-based curriculum for 21st -century skills development among primary school teachers in Tanzania: A case of Kyela District

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ABSTRACT

In Tanzania, the 2023 Revised Competency-Based Curriculum has been introduced to promote learner-centred teaching and develop 21st-century skills among learners. Nevertheless, there is a lack of sufficient evidence regarding how well teachers can implement the curriculum, considering the existing conditions in the schools. This research aimed to evaluate the challenges experienced by teachers in implementing the 2023 Revised Competency-Based Curriculum and its impact on the development of 21st-century skills in learners of primary schools in the Kyela district, Tanzania. This research was informed by the Concerns-Based Adoption Model (CBAM) and Constructivist Learning Theory. The mixed-methods research approach that uses a convergent parallel design was used. Quantitative data were collected through questionnaires distributed to 49 respondents who were randomly selected, while qualitative data were collected through semi-structured interviews conducted with selected teachers and head teachers. Quantitative data were analysed descriptively and multiple regression analysis, while qualitative data were analysed using thematic approach It was found that lack of sufficient teaching and learning materials, inadequate Information and Communication Technology [ICT], lack of instructional materials, and lack of professional development were the major challenges facing curriculum implementation. This study also found that the mentioned challenges affected the development of critical thinking, creativity, communication, collaboration, problem-solving and digital literacy skills of the learners. Regression analysis indicated that participation in MEWAKA/TCPD programs, availability of resources, teacher collaboration, ICT and institutional support had significant effect on curriculum implementation. From this study, one can conclude that there is a great disparity between curriculum demands and classroom practice. This study suggests that there is need for improvement of professional development of teachers, availability of educational and ICT resources and institutional support systems to implement the new curriculum and develop 21st century skills among learners.

Keywords: Competency-Based Curriculum, 21st-Century Skills, Curriculum Implementation, Kyela District, Primary Education, Teachers, Tanzania

I. INTRODUCTION

The concept of 21st century skills has become vital to contemporary educational reforms around the globe (Kiggundu et al., 2025; Msamba et al., 2023). The term embraces critical thinking, creativity, communication, collaboration, problem solving, and digital literacies that are believed to be important for the success of learners in increasingly complicated and technological societies (Miglani et al., 2026). In order to enhance the development of these skills, many nations use competency-based curricula that emphasized skills, values, and attitudes instead of knowledge (Andrew, 2021; Mulenga & Kabombwe, 2019). Such reforms aim at preparing learners for lifelong learning, working, and participating in society.

Globally, there is a growing tendency to adopt a competency-based approach to education in view of changes taking place in the twentieth century. Educational institutions of Europe, North America, Asia, and Australia have adopted competency-based curricula to develop higher-order thinking and problem-solving skills of the learners (Catacutan et al., 2023; Miglani et al., 2026). However, research shows that the process of implementing a curriculum usually encounters some obstacles such as the lack of readiness among teachers, instructional materials, reluctance to change teaching methods, and poor institutional support (Syomwene, 2023; Taliak et al., 2022). Such problems result in a discrepancy between the intentions of the curriculum and its implementation.

Competency-based curricula have been implemented in various Sub-Saharan African countries, such as Rwanda, Kenya, Uganda, and South Africa, in order to enhance the effectiveness of the learning process (Mwang'ombe, 2021; Namubiru et al., 2024; Nzoka, 2024; Obiakor, 2024). Nevertheless, it is important to mention that studies in this region reveal certain obstacles associated with the implementation process of such curricula, including crowded classes, scarcity of educational and learning materials, lack of adequate professional development of teachers, and infrastructure deficiencies (Cooper, 2026; Dumbuya, 2024; Kongterm, 2020). These factors prevent teachers from implementing learner-centred pedagogies and developing relevant competencies in their students.

The introduction of the 2023 Revised Competency-Based Curriculum of primary education in Tanzania has been done in an attempt to increase the focus on learner-centred learning and the development of necessary competencies in the contemporary world (Assey, 2022; Komba, 2023; Munisi, 2025). According to the new curriculum, the following elements should be included into learning process: active learning, critical thinking, creativity, communication, collaboration, and problem-solving. It should be noted that teachers should help learners develop these competencies through participatory processes of learning (Kasuga & Kalolo, 2025; Nemes & Ogondiek, 2026; Nkya et al., 2021). It should be mentioned that the implementation of the new curriculum occurs in school settings where there is a wide variation in resources, infrastructure, and readiness of teachers.

Even though past research in Tanzania has explored issues such as curriculum reform and competency-based learning, there is not much empirical information about the difficulties that teachers face in implementing the 2023 Revised Competency-Based Curriculum in the country and their impact on learners' acquisition of 21st century skills (Andrew, 2021; Assey, 2022; Komba, 2023; Munisi, 2025; Nkya et al., 2021). Moreover, no information is available about the contextual factors associated with primary schools in Tanzania which can contribute to successful or unsuccessful implementation of the curriculum, especially in the case of Mbeya City Council. Such lack of information means that research should be conducted on teachers' experiences of curriculum implementation. This study will explore the difficulties that teachers face when implementing the 2023 Revised Competency-Based Curriculum in primary schools in Tanzania, especially in Kyela District Council. Specifically, this study has examined the challenges faced by primary school teachers in implementing Tanzania's 2023 Revised Competency-Based Curriculum in Kyela District; examined how implementation challenges affect the development of learners' 21st-century skills among primary school learners in Kyela District; and explore school-based contextual factors contributing to difficulties in implementing Tanzania's 2023 Revised Competency-Based Curriculum in primary schools in Kyela District. The importance of this study lies in the fact that it will provide empirical information regarding the difficulties of the primary school teachers in implementing the 2023 Revised Competency-Based Curriculum of Tanzania in relation to the development of 21st century skills among the learners in Kyela District. The results of the study will be helpful for the policy makers, curriculum planners and administrators of education to get an understanding of what the realities are regarding the curriculum implementation process and thus help in devising evidence-based strategies to deal with issues arising out of it.

1.1 Research Objective

The following were the specific objectives for the study:

i) To examine primary school teachers' perceptions of the challenges they face in implementing Tanzania's 2023 revised competency-based curriculum for the development of learners' 21st century skills in Kyela District.
ii) To assess the extent to which teachers' preparedness and pedagogical competence influence the implementation of the 2023 revised competency-based curriculum for 21st-century skills development.
iii) To examine the extent to which the availability of teaching and learning resources, including ICT facilities, affects the implementation of the 2023 revised competency-based curriculum for 21st century skills development.
iv) To determine the extent to which classroom conditions and assessment practices constrain teachers' implementation of the 2023 revised competency-based curriculum for developing learners' 21st century skills.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Concerns-Based Adoption Model (CBAM)

This research was informed by the Concerns-Based Adoption Model (CBAM) proposed by Hall (1974). The model describes individuals' experiences and reactions to education innovations at the time of implementation. According to CBAM, curriculum implementation is effective if teachers are aware, knowledgeable about the innovation, have concerns and readiness to adopt new instructional approaches (Olson et al., 2020). The model focuses on the idea that educational changes should be facilitated by appropriate support, training, and resources.

While implementing the curriculum, teachers might face concerns associated with inadequate knowledge, lack of resources, workload and institutional support that can affect the effectiveness of the reform (Trapani & Annunziato, 2019). In this case, the relevance of the theory is explained by the need to understand the challenges that teachers can face while implementing the new curriculum in the country. As the major implementers of the curriculum, teachers are the key stakeholders in understanding the difficulties faced and ways to foster learners' acquisition of 21st-century skills.

2.1.2 Constructivist Learning Theory

The study was also be guided by Constructivist Learning Theory, which was proposed by Piaget (1973) and subsequently developed by Vygotsky (1978). The theory postulates that learning entails the process where students actively construct knowledge based on interactions with the environment, experience, and social interaction, rather than the passive process of acquiring knowledge provided by teachers (Devi, 2019). Learner-centred teaching strategies encouraged by constructivism include collaborative learning, problem-solving, inquiry-based learning, discussions, and reflection. These teaching strategies are vital to competency-based education and the acquisition of 21st-century skills.

The theory is applicable to the 2023 Revised Competency-Based Curriculum since the curriculum encourages active learning, critical thinking, creativity, communication, collaboration, and problem-solving (Irshad et al., 2021). Successful implementation of the curriculum requires the creation of an environment that will enable learners to take part in the learning process and construct knowledge. Some of the barriers to successful implementation of the curriculum include overcrowded classes, a lack of adequate teaching materials, and inadequate preparation of teachers. Therefore, Constructivist Learning Theory provides insight into the pedagogy expected under the curriculum and the challenges facing teachers in fostering 21st-century skills among learners.

While the Concerns-Based Adoption Model concentrates on teachers' experience, concerns, and adaptation to curriculum changes, Constructivist Learning Theory accounts for learner-centred teaching strategies that ensure competency attainment. Nevertheless, each theory is not sufficient in its own right to provide a complete understanding of the dynamics between the problems faced by teachers and the context of the school in relation to the adoption of the 2023 Revised Competency-Based Curriculum in Tanzania. Thus, this research seeks to merge the two theories in order to analyze both the difficulties encountered by teachers during implementation and their impact on competency acquisition.

2.2 Empirical Review

2.2.1 Challenges Faced by Teachers in Implementing Competency-Based Curriculum

The successful implementation of a competency-based curriculum mainly rests on the ability of teachers to operationalize curricular objectives in their teaching. Nevertheless, from various countries, it has been established that there are many challenges faced by teachers in the process of implementation. Some of these challenges include lack of proper professional training, lack of teaching and learning resources, crowded classrooms, inadequate infrastructure, and increased workload. Such challenges may hinder teachers in the adoption of learner-centered methods and also in facilitating the acquisition of competence and 21st-century skills among the learners (Catacutan et al., 2023; Syomwene, 2023).

From various studies conducted in Tanzania, there are many challenges faced during the implementation of competency-based curriculum. According to Nkya et al. (2021), some of the challenges encountered included lack of proper instructional materials, lack of knowledge regarding competency-based approach and lack of professional assistance. Similarly, Andrew (2021) found out that lack of resources and lack of adequate preparations by teachers had hampered the development of competencies necessary for employability and lifelong learning. Kasuga and Kalolo (2025) have also identified various challenges including lack of adequate infrastructure, lack of teaching materials and inadequate capacity building for teachers. According to Msamba et al. (2023), the inadequacies in the process of planning and implementing in-service training programmes have made teachers less ready to adopt the teaching strategies related to competency-based curricula.

Similar observations have been made in different parts of Africa. In the case of Kenya, Mwang'ombe (2021) found out that teachers using the Competency-Based Curriculum were facing problems like a lack of adequate training, a lack of instructional materials, and a workload due to the assessment processes that come along with the curriculum. Namubiru et al. (2024) reported that teachers in Uganda had difficulty adopting learner-centred approaches because of having big classes, resource shortages, and lack of institutional support.

2.2.2 Competency-Based Curriculum and the Development of 21st-Century Skills

The competence-based curriculum framework is intended to prepare learners with knowledge, skills, values, and attitudes, enabling them to cope well in a dynamically changing environment. Competence-based curriculum is a framework that does not focus on teaching content like content-based frameworks but emphasises the application of the acquired knowledge and the development of various skills such as critical thinking, creativity, communication, collaboration, problem solving and digital literacy, collectively known as 21st century skills. These skills are now increasingly perceived as fundamental skills needed for lifelong learning, employability, and engagement in society (Cooper, 2026; Catacutan et al., 2023).

Several empirical studies show that competency-based learning encourages the development of high-order thinking skills among learners through active learner participation, questioning, collaboration, and problem-solving. Miglani et al. (2026) have shown that the competency-based education enables the holistic development of learners through the promotion of critical thinking, creativity, and the application of knowledge in real-life scenarios. In addition,

Kongterm (2020) revealed that competence-based curriculum programs have improved communication skills, teamwork, and problem-solving skills of learners due to learner-centered instructional approach. Moreover, Taliak et al. (2022) found that competency-based model helps learners develop their adaptability and innovative skills in the era of globalization and technology.

The reform of the Tanzanian curriculum has been marked by an increased focus on integrating 21st century skills in the learning process. According to Komba (2023), the new curriculum for basic education has incorporated skills such as communication, critical thinking, creativity, and collaboration in learning areas. In a similar manner, competency-based education enables learners to acquire employability and life skills that are necessary for their future success, according to Andrew (2021). Nevertheless, for these outcomes to be achieved, proper curriculum implementation, teacher effectiveness, and conducive learning environments need to be guaranteed. Consequently, although the competency-based curriculum presents an excellent structure for the development of 21st century skills, its implementation depends on how well teachers apply learner-centered approaches in teaching.

2.2.3 Contextual Factors Influencing Curriculum Implementation

The process of implementing a competency-based curriculum depends not only on the knowledge and skills of teachers but also on the surrounding context. Such variables as availability of teaching and learning materials, classroom infrastructure, size of classes, administrative support, and professional development of teachers affect how effectively the curriculum can be implemented in the learning process. In case these factors are absent, the teachers would experience certain problems with the implementation of the learner-centred pedagogy and the achievement of the required learning outcomes of curriculum reforms (Obiakor, 2024; Dumbuya, 2024).

In Tanzania, some contextual factors have been determined to influence the implementation of the competency-based education system. Assey (2022) states that inadequate instructional materials, lack of teacher support and development programs prevent the effective implementation of competency-based curricula in schools. According to Munisi (2025), argues that the implementation of competence-based education implies the existence of an institutional context, adequate infrastructure, and continuous capacity building of teachers. Equally important, Kasuga and Kalolo (2025) also highlight that the inequality in the availability of resources influences the effectiveness of the process of curriculum implementation and competencies' development.

Other evidence from countries in Africa shows the same problems. Namubiru et al. (2024) showed that school leadership, teachers' collaboration, and resource availability were crucial for curriculum implementation in Uganda. Similarly, Mwang'ombe (2021) stated that overcrowded classrooms, lack of appropriate learning conditions, and absence of parents' and institutional support hindered implementation of the Competency-Based Curriculum in Kenya. Thus, these results indicate that implementation of a curriculum involves many contextual issues that are not related directly to the classroom. This knowledge will be important for detecting the obstacles to the implementation of the 2023 Revised Competency-Based Curriculum in Tanzania and fostering learners' 21st-century skills.

The reviewed literature proves that implementation of competency-based curricula often faces some difficulties associated with teacher preparedness, availability of resources, infrastructure, and institutional support. Additionally, many studies confirm the value of competency-based education in terms of fostering 21st-century skills among learners. Nevertheless, existing literature was mainly devoted to the issues that occurred before the implementation of the 2023 Revised Competency-Based Curriculum in Tanzania or concerned secondary education. There is scant empirical literature on the experiences of teachers with the introduction of the 2023 revised curriculum in the primary education institutions and the effect that difficulties experienced during its implementation have on the development of 21st-century skills of the learners. In addition, there is very limited knowledge on the contextual issues that influence the implementation of the curriculum in Kyela district. This research thus aims at filling this gap through studying the above issues in relation to 21st-century skills.

III. METHODOLOGY

3.1 Research Approach

In this study, a mixed-methods research methodology has been used. It involves the use of both qualitative and quantitative research methods to acquire a holistic understanding of the issues that teachers face in implementing the competency-based curriculum of Tanzania in 2023, and its impact on the acquisition of 21st century skills by learners. It was found appropriate to use this type of research design since it combines the best of both types of research. In quantitative research, data can be measured in terms of how widespread and significant the issues are. On the other hand, qualitative data give a deeper perspective of the situation.

3.2 Research Design

The study employed a convergent parallel mixed-method research design. This research design entails the simultaneous collection of quantitative and qualitative data, which is then analyzed separately and integrated when drawing conclusions about the results. The use of such a research design was deemed suitable in that it allows the researcher to get numerical data and comprehensive information on the difficulties teachers encounter in implementing the revised competency-based curriculum for 2023 in Tanzania. Quantitative data allowed the researcher to gauge the intensity and extent of these difficulties, while qualitative data gave a detailed account of how teachers experience them. The use of these two types of data made the research more comprehensive and credible.

3.3 Study Area

The research took place at Kyela District Council (DC), which lies within the administrative region of Mbeya in Tanzania. The district of Kyela lies within the southern part of the region, and it is mainly composed of a rural area with agriculture as the predominant economic activity of the people. The research was based on three public primary schools, including Ipinda Primary School, Kisale Primary School and Mwenge Primary School, which were deliberately selected for the reason that they are applying the Competency-Based Curriculum of 2023 in Tanzania. The choice of the district was influenced by the nature of its educational context, including school facilities, learning and teaching materials, and teacher experiences, among other contextual factors that may affect the implementation of the curriculum...

3.4 Target Population

The target population was all teachers working at Ipinda, Kisale and Mwenge Primary Schools of Kyela District Council. These teachers were selected for the study because they are actively engaged in the process of implementing the competency-based curriculum as revised in Tanzania in 2023 and have firsthand experience with the issues related to the implementation of this curriculum. The total target population was 96 teachers in three selected primary schools. Head teachers were also considered as key informants in the qualitative part of the study because of their managerial functions and knowledge about the process of curriculum implementation in their respective schools..

3.5 Sample Size and Sampling Procedures

The sample size for this study was determined using Yamane's (1967) formula, which is expressed as:

$$n = \frac{N}{1 + n(e)^2}$$

Where:

n = sample size

N = target population

e = margin of error

The target population consisted of all teachers from Ipinda, Kisale, and Mwenge Primary Schools in Kyela District Council, with a total population of 96 teachers. With a smaller population like that, the margin of error of 10% (0.10) was used. Sample size was determined using the following formula:

$$n = \frac{96}{1 + 96(0.1)^2}$$

= 49

Hence, 49 teachers were used in the quantitative research part. Random sampling technique was used to select participants for the quantitative research. Purposive sampling was used in the qualitative part of the research for the selection of key informants, especially the head teachers and the experienced teachers due to their knowledge and experience in teaching the 2023 Revised Competency-Based Curriculum.

Table 1

Sample Distribution

School	Population (Teachers)	Sample Size
Ipinda Primary School	32	16
Kisale Primary School	31	16
Mwenge Primary School	33	17
Total	**96**	**49**

3.6 Data Collection Methods

Both questionnaires and semi-structured interviews were used in this study to acquire quantitative and qualitative data, respectively. The structured questionnaire was distributed among the selected teachers from Ipinda,

Kisale, and Mwenge Primary Schools to collect quantitative data about the problems of implementing the 2023 Revised Competency-Based Curriculum, development of 21st century learners' skills, and factors affecting the curriculum implementation process. The questionnaire involved close-ended questions measured on a five-point Likert scale, from "Strongly Disagree" (1) to "Strongly Agree" (5), whereby the respondents indicated their levels of agreement to the statements about the research questions.

Apart from this, semi-structured interviews were carried out with selected head teachers and experienced teachers in order to collect qualitative data about their experiences, perceptions and problems in implementing the revised curriculum. Interviews gave the participants the chance to discuss more the issues which could not have been discussed in the questionnaires. Triangulation of data became possible by applying the two tools.

3.7 Validity and Reliability of Research Instruments

The validity and reliability of the research instruments were determined before conducting the actual data gathering procedure. Content validity was ensured via an expert panel, where educators and curriculum experts reviewed the questionnaire and interview guide as to its clarity, relevance, and appropriateness with respect to the goals of the research. A pilot test was done on a number of teachers in a primary school that is located outside of the research area in order to determine any ambiguities in the instruments used. The reliability of the questionnaire was determined by way of Cronbach's Alpha coefficient, where a score of .70 and above can be considered reliable.

3.8 Data Analysis Procedures

The collected quantitative data from questionnaires were then coded, entered and analysed through Statistical Package for Social Sciences (SPSS) version 26. Descriptive statistics such as frequencies, percentages, means and standard deviations were applied to describe the respondents' profiles as well as to identify the challenges experienced by teachers, the impact of implementation challenges on the development of 21st century skills among learners, and the contextual factors affecting curriculum implementation. Furthermore, multiple regression analysis was used to determine how much the contextual factors predict the implementation of the 2023 Revised Competency-Based Curriculum. The collected qualitative data from semi-structured interviews was then transcribed verbatim and analyzed through thematic analysis. Finally, the quantitative and qualitative findings were combined during data analysis to get an overview of curriculum implementation challenges and their implications for the development of 21st century skills among learners.

3.9 Ethical Considerations

Ethical considerations were made throughout the research in order to protect participants as well as preserve the integrity of the entire research process. Permission to conduct the study was granted by the appropriate bodies before the collection of the data took place. This included the Kyela District Council and administrations of the selected primary schools. The reason for conducting the research was made known to participants and their willingness to participate in the research was ascertained through the process of informed consent. Confidentiality and anonymity were guaranteed to the respondents, and none of the personal information appeared in the research report. Right of withdrawal at any time without any consequences was also made clear to participants.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Challenges Faced by Teachers in Implementing the 2023 Revised Competency-Based Curriculum

Respondents indicated their degree of agreement with statements related to the difficulties in implementing the revised competency-based curriculum for Tanzania 2023. The responses were rated on a five-point Likert scale from 1 = Strongly Disagree to 5 = Strongly Agree. According to the findings in Table 2, the respondents faced many difficulties during the implementation of the 2023 Revised Competency-Based Curriculum with an overall mean of 4.23. The greatest difficulty was the lack of professional development training (M = 4.52, SD = 0.58), followed by a shortage of teaching and learning materials (M = 4.41, SD = 0.67) and teaching aids (M = 4.37, SD = 0.63). Other difficulties reported by the respondents included a lack of ICT facilities, infrastructure, and other instructional resources. It can be concluded that both capacity issues and resource issues play an important role in the implementation of the revised curriculum.

Table 2

Challenges Faced by Teachers in Implementing the 2023 Revised Competency-Based Curriculum

Statement	Mean	SD
There is an inadequate supply of teaching and learning materials for implementing the curriculum.	4.41	0.67
ICT facilities available in the school are insufficient to support curriculum implementation.	4.29	0.74
Large class sizes make it difficult to implement learner-centred teaching approaches.	4.18	0.81
Limited access to instructional resources affects the development of learners' competencies.	4.33	0.69
Teachers require more professional development training on the revised curriculum.	4.52	0.58
Inadequate time for lesson preparation affects effective curriculum implementation.	3.98	0.85
Some parents provide limited support for learners' competency development activities.	3.86	0.91
The assessment requirements of the revised curriculum increase teachers' workload.	4.12	0.77
Limited availability of teaching aids affects the promotion of 21st-century skills.	4.37	0.63
Inadequate school infrastructure constrains effective implementation of the revised curriculum.	4.24	0.72

The qualitative findings confirmed the results from the quantitative analysis, especially those relating to the scarcity of teaching and learning materials. This was illustrated by one of the participants from Kisale Primary School, who stated:

> *"The main challenge that we face is that of a shortage of teaching and learning materials. In implementing competency-based assessment, the learners are supposed to engage with tangible objects and learning materials. Unfortunately, such materials may be lacking. Without the equipment and learning materials, it would be impossible to conduct a practical assessment of the learners based on their real competencies as stipulated by the curriculum."* (KII-1, Kisale Primary School, interview 12th May 2026).

Additionally, the results indicated that teachers felt that professional development was critical to the implementation of the curriculum. While the teachers had undergone orientation and training, the changing nature of the newly implemented curriculum required capacity building. As explained by one participant:

> *"The new curriculum brings in new ways of teaching, assessing, and developing competence; hence, teachers are expected to be continuously updating themselves. As part of MEWAKA and other professional learning experiences, we share with each other and overcome difficulties that come up in its implementation. We need continuous learning because educational trends are always changing, and teachers need constant help in order to facilitate the acquisition of 21st-century skills in learners."* (KII-2, Kisale Primary School, 12nd May 2026)

In a similar way, there was an emphasis on enhancing the provision of learning materials and ICT facilities for facilitating competency-based learning. One respondent from Mwenge Primary School said:

> *"The government and all stakeholders in the education sector need to provide schools with enough teaching materials, books, ICT equipment, and other learning materials. When learners get access to the right materials, they become more involved in the learning process and gain more competencies. These facilities will make learning easier for teachers and make them facilitate learner-centred approaches as required in the new curriculum."* (Participant 2, Mwenge Primary School, 14th May 2026)

In general, the findings of the qualitative study support those from the quantitative study since the lack of resources, instructional materials, ICT infrastructure, and continuous training of teachers have been found to be the most prominent barriers to the implementation of the 2023 Competency-Based Curriculum in primary schools of Tanzania.

4.1.2 Effects of Implementation Challenges on the Development of 21st-Century Skills

The second objective aimed at exploring how implementation challenges influence the development of learners' 21st-century skills in primary schools. Teachers were requested to provide information about their levels of agreement with various statements concerning the effect of implementation challenges on learners' ability to develop critical thinking, communication, collaboration, creativity, problem-solving and digital literacy skills. According to Table 3, implementation challenges have an enormous effect on the development of learners' 21st-century skills based on the mean score of 4.32. The most significant challenge identified in this case is the poor ICT facilities that hinder learners' development of digital literacy skills (M=4.47, SD=0.63). Other challenges ranked among the most significant include the overall impact of implementation challenges on the development of 21st-century skills (M=4.44, SD=0.61) and lack of proper teacher training in order to promote problem-solving skills (M=4.41, SD=0.65).

Table 3

Effects of Implementation Challenges on the Development of 21st-Century Skills

Statement	Mean	SD
Shortages of teaching and learning materials limit learners' opportunities to develop critical thinking skills.	4.33	0.71
Inadequate ICT facilities hinder the development of learners' digital literacy skills.	4.47	0.63
Limited instructional resources reduce opportunities for creativity and innovation among learners.	4.29	0.68
Large class sizes negatively affect learners' participation in collaborative learning activities.	4.18	0.79
Insufficient teacher training affects the effective promotion of problem-solving skills among learners.	4.41	0.65
Resource constraints limit the use of learner-centred teaching approaches.	4.35	0.70
Inadequate learning facilities reduce opportunities for practical and experiential learning.	4.22	0.76
Implementation challenges negatively affect learners' communication skills development.	4.10	0.81
Limited teaching aids reduce learners' engagement in competency-based learning activities.	4.38	0.66
Implementation challenges reduce the overall effectiveness of developing 21st-century skills.	4.44	0.61

Qualitative data analysis further showed that teachers know the importance of 21st-century skills, but find it hard to develop them among their students due to practical limitations. It was found that participants perceive communication, collaboration, creativity, critical thinking, and digital literacy as key competencies in the new curriculum; however, the success of their development is contingent upon the availability of the proper learning materials and learning environment. Participant number one stated:

> *"The current curriculum focuses much attention on the use of technology right from the beginning as the learners are supposed to get used to ICT throughout the process of education. But when there is no enough ICT material and equipment in the school, it becomes hard for the learners to get practical experience in the use of ICT. The result is that they only have theoretical knowledge, which is important for the future education in the ICT-driven world."* (KII-1, Kisale Primary School, 12th May 2026)

Another finding is that collaborative learning and communication skills are usually developed by means of group work and classroom discussion. Nonetheless, teachers pointed out that the lack of instructional materials and learning resources hinders the efficiency of such activities. Participant number three stated:

> *"Generally, I put learners in groups where they can interact, discuss and learn from each other. Group activities help learners acquire communication and collaboration skills. But group activities will be more fruitful if there are enough learning resources and teaching aids. Otherwise, it will not be possible to involve all learners actively and meaningfully."* (KII-3, Kisale Primary School, 12 May 2026)

Also, creativity and innovation were regarded as the outcomes of the modified curriculum. It was indicated that teachers tried to encourage the learners to take up practical assignments and activities where they could come up with solutions using locally available resources. Nonetheless, due to shortage of resources, it was difficult to implement those activities. As a participant stated:

> *"I emphasize on the creativity of the learners through giving them practical activities and encouraging them to make things using whatever they find around them. This helps them to think innovatively and independently. But the inadequate teaching and learning resources sometimes limit what we can do."* (KII-5, Mwenge Primary School, 14th May 2026)

To reinforce the results of the quantitative data analysis, the qualitative information indicated that challenges of implementation can influence the learners' attainment of 21st-century skills to a great extent. According to the participant from Ipinda Primary School:

> *"Even though the new curriculum emphasises the development of learners' communication, collaboration, creativity, critical thinking, and problem-solving skills, implementation of the new curriculum is usually restricted by the shortage of teaching and learning materials that could promote competency-based learning. Sometimes, teachers cannot use appropriate teaching aids due to this challenge, and, as a result, learners may be unable to take part in practical activities that are important for their skill development."* (KII-6, Ipinda Primary School, 16th May 2026)

Additionally, the participant stressed the significance of the integration of ICT into the process of learning:

> *"The curriculum provides numerous opportunities for digital learning and the innovation of learners. Nonetheless, some schools do not provide learners with enough ICT facilities such as computers, projectors, and internet access. Learners cannot benefit from using these facilities and, thus, develop necessary technological competencies. The solution of this challenge would help learners to be well-prepared for the requirements of the twenty-first century."* (KII-7, Ipinda Primary School, 16th May 2026)

While the quantitative data shows that teachers are dedicated to developing 21st-century skills among learners, there are various barriers including the lack of ICT infrastructure, poor teaching facilities, lack of instructional materials, and lack of professional development which hinder their efforts. Thus, these barriers limit the chance of developing essential competencies in line with the 2023 Revised Competency-Based Curriculum.

4.1.3 Contextual Factors Influencing Curriculum Implementation

The third research aim aimed at analyzing the factors that would affect the implementation of the 2023 revised competency-based curriculum in Tanzanian primary schools. The teachers were requested to rate their levels of agreement on several issues concerning the school environment, support from leadership, parent participation, teacher collaboration, professional development, and availability of resources. The responses were rated using a five-point Likert Scale, as shown in Table 4.

Table 4

Contextual Factors Influencing Curriculum Implementation

Statement	Mean	SD
School leadership provides adequate support for curriculum implementation.	4.16	0.74
Teacher collaboration enhances the implementation of the revised curriculum.	4.42	0.61
Participation in MEWAKA/TCPD improves teachers' implementation capacity.	4.57	0.55
Parents contribute positively to learners' competency development.	3.88	0.86
The school environment supports learner-centred teaching approaches.	4.03	0.79
Availability of teaching resources facilitates curriculum implementation.	4.31	0.67
Access to ICT facilities improves the implementation of competency-based learning.	4.39	0.63
Support from education officers contributes to successful curriculum implementation.	4.21	0.72
Continuous professional development strengthens teachers' instructional practices.	4.49	0.58
Community involvement supports the development of learners' 21st-century skills.	3.94	0.81

The results reveal a generally favourable school and community context for the implementation of the 2023 Revised Competency-Based Curriculum (CBC). The overall mean score of 4.24 (SD = 0.70) indicates that teachers perceived the contextual factors as largely supportive of curriculum implementation. In particular, teachers' participation in the implementation process recorded a relatively high mean score of 4.57 (SD = 0.61), suggesting that teachers were actively engaged in translating the curriculum into classroom practice. Similarly, school leadership support for curriculum implementation recorded a mean score of 4.16 (SD = 0.74), indicating that school-level leadership provided a relatively supportive environment for the implementation process. These findings suggest that effective curriculum implementation depends not only on teachers' willingness to participate but also on institutional and leadership support. This interpretation is consistent with recent evidence showing that teacher participation and supportive leadership are important for strengthening competency-based curriculum implementation. For example, Mihambo and Amos (2025) found that teachers play a vital role in the effective implementation of competency-based curricula and emphasized the importance of supportive leadership and teacher involvement. Similarly, Odit and Chakrawarty (2026) reported a strong positive relationship between school administrative support and teachers' competence in implementing the CBC.

Continuous professional development was one of the factors evaluated positively (M = 4.49, SD = 0.58), indicating the importance that the teachers place on professional growth. Participating in professional development activities, teachers are more likely to have updated knowledge about teaching methods and strategies and assessment techniques necessary for successful implementation of the revised curriculum. Collaboration among the teachers was also found to be a very influential variable (M = 4.42, SD = 0.61) and this implies that teacher collaboration activities like peer learning, lesson planning, experience sharing and professional discourse have a significant role in the effective implementation of curricula. Through collaboration, the teachers get the chance to share their ideas, solve instructional problems, and help each other in dealing with the change in curricula.

It is further revealed by the results of this study that the presence of ICT facilities (M = 4.39, SD = 0.63) and teaching resources (M = 4.31, SD = 0.67) was rated to be very important in facilitating the implementation of the curricula. These two variables allow the teachers to use learner-centered and technologically enhanced instructional strategies to help develop the competencies of the learners in the 21st century. Apart from this, support from the education officers (M = 4.21, SD = 0.72) and the school management (M = 4.16, SD = 0.74) were also rated relatively high. Even though parent participation (M = 3.88, SD = 0.86) and community support (M = 3.94, SD = 0.81) had relatively low mean scores, the two variables received positive feedback from the respondents. The results show that both parents and community members are involved in the process of building competencies of the learners, but not as actively as the other contextual factors. In general, one can say that supportive working conditions, sufficient resources, good leadership, and teacher collaboration help implement the new curriculum successfully..

4.2.1 Regression Analysis of Contextual Factors Influencing Curriculum Implementation

Regression analysis was conducted to ascertain the degree to which contextual factors are able to predict curriculum implementation of the 2023 Revised Competency-Based Curriculum. In this study, curriculum implementation is considered to be the dependent variable, while leadership support, teachers working together,

MEWAKA/TCPD involvement, parent involvement, availability of ICT, and availability of resources are independent variables.

Table 5

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1	0.786	0.617	0.563	0.421

These findings demonstrate that the model explains 61.7% of the variance in the implementation of the curriculum ($R^2 = 0.617$). The findings indicate that the predictors used in the regression model explain more than half of the differences in the implementation of the revised competency-based curriculum within the surveyed schools and teachers. It can be assumed that contextual and institutional factors play a crucial role in predicting the extent to which the curriculum will be implemented. At the same time, 38.3% of variance remains unexplained by the predictors included in the regression model. These can be such factors as the motivation of the teachers, number of students in the class, characteristics of the learners, engagement of the parents, school culture, community support, and policies issues. Thus, the findings show strong evidence of the significance of the contextual factors influencing the implementation of the new curriculum, yet the need for further research to determine other determinants of curriculum implementation exists.

Table 6

Regression Coefficients

Variable	Beta	t-value	Sig.
School Leadership Support	0.214	2.347	0.024
Teacher Collaboration	0.271	3.118	0.003
MEWAKA/TCPD Participation	0.326	3.842	0.001
Parental Involvement	0.117	1.638	0.109
ICT Availability	0.243	2.754	0.009
Resource Availability	0.289	3.216	0.002

From the regression analysis, it is evident that participation in MEWAKA/TCPD ($\beta = 0.326$, $p < 0.01$), resource availability ($\beta = 0.289$, $p < 0.01$), collaboration among teachers ($\beta = 0.271$, $p < 0.01$), ICT availability ($\beta = 0.243$, $p < 0.01$), and support from school leadership ($\beta = 0.214$, $p < 0.05$) significantly impact the implementation of the curriculum. Of the factors identified above, participation in MEWAKA/TCPD is the most important predictor, and hence, teachers who are involved in professional learning communities and professional development programmes are better placed to implement the newly introduced competence-based curriculum. Professional development activities ensure that teachers acquire appropriate knowledge on how to deliver the curriculum using learner-centered methods.

Nonetheless, parental involvement did not prove to have a statistically significant influence on curriculum implementation ($\beta = 0.117$, $p > 0.05$). Despite parents being able to help the learners in their education through motivation, supervision and supply of learning materials, it seems from the results that the influence they might exert on the implementation of the improved curriculum by the teacher is minimal. This could be due to differing parental knowledge about curriculum changes, differing socio-economic backgrounds, or lack of avenues through which parents can be involved in the curriculum process. However, the positive beta value suggests that parental involvement might have an indirect influence on curriculum implementation and learners' achievement, despite the statistical insignificance in the current study.

4.3 Thematic Findings

In addition to providing additional information regarding the quantitative and regression findings, the qualitative data offered valuable insights concerning the contextual factors affecting the adoption of the 2023 Revised Competency-Based Curriculum. Professional support system, collaborative learning of teachers, availability of teaching-learning resources, ICT facilities and administrative support from school heads and Education officers were consistently mentioned by the participants as crucial in ensuring effective implementation of the revised curriculum through competent delivery of competency-based lessons that will allow learners to acquire 21st century competencies.

Some participants indicated that the efforts in professional development such as MEWAKA and other Teacher Continuous Professional Development (TCPD) initiatives have had great impact in developing the knowledge of teachers about the revised curriculum. The participants indicated that through these initiatives, teachers are provided with platform where they get chance to interact with colleagues, share ideas, discuss and find possible ways of

overcoming difficulties in implementation of competency-based lessons. These interactions were seen to help teachers become more confident and competent in implementing the curriculum.

One participant said:

> *"Through the MEWAKA forums, teachers exchange ideas and share experiences on how best to implement the curriculum. One teacher may be more knowledgeable about a certain part of the curriculum than others and, together, we become much better educators and solve problems collectively. These forums have really helped us gain confidence in implementing the new curriculum."* (KII-1, Kisale Primary School, 12th May 2026).

More findings revealed that availability of resources greatly impacts curriculum implementation. Teachers claimed that in the competency based education system learners are supposed to be involved in practices, project work and problem solving as well as collaborative learning. But to effectively implement such strategy one should have enough instructional materials, books, teaching aids and technology. It was stated that lack of such resources made it difficult for teachers to implement learner-centered education strategies and also limited learners in gaining competencies through practice. Availability of ICT resources was also regarded as an important factor because technologies encourage interaction, getting information, innovation among learners.

One of the participants stated:

> *"Revised curriculum requires learners to engage themselves in practical activities and technology-based learning. But the limitation in teaching materials, ICT facilities and other resources limits teachers in implementing such strategies effectively. If schools had enough resources, learners would gain competencies more effectively and also teachers would implement the curriculum as it is meant."* (KII-2, Mwenge Primary School, 14th May 2026).

Additionally, participants pointed out the need for institutional and administrative support in the process of implementing the curricula. It was argued that the support from head teachers, ward education officers, and other educational administrators facilitates the implementation process in terms of provision of necessary resources, organization of professional development programs, monitoring of the instructional practices, and provision of guidance in case of any difficulties. This support was regarded as crucial for sustaining the motivation of the teachers and proper implementation of the reforms at schools. Supportive leadership is also seen as a factor stimulating innovations and promoting collaboration among the teachers.

The following statement of one of the participants is an example:

> *"The support we receive from the head teacher and education officers are important since it helps us access teaching materials, participate in professional development programs, and get guidance whenever implementation challenges arise. This kind of support motivates teachers and helps implement the curricula effectively."* (KII-5, Ipinda Primary School, 16th May 2026).

Qualitative research findings, therefore, corroborate the results obtained from the quantitative research because it shows that implementation of the curriculum is not only dependent on the efforts of teachers alone but is also influenced by the larger educational environment in which teaching and learning takes place. Professional development programs, teacher communities, provision of teaching materials, information communication technologies (ICT), and effective institutional support help in improving the ability of teachers to implement the new curriculum. The above-mentioned environmental factors make the environment conducive for competency-based teaching and learning.

4.4 Discussion

The results of this study show that teachers encounter great difficulties in the implementation of the Revised Competency-Based Curriculum of Tanzania for the year 2023, mainly due to the lack of learning and teaching materials, ICT infrastructure, instructional materials, and the need for professional development. The findings show that even though the new curriculum promotes learner-centeredness and the development of 21st century skills, the existence of resources plays a crucial role in the implementation process of the curriculum. The findings are supported by the findings of Nkya et al. (2021), who have shown that the lack of instructional materials and teacher preparation was a factor hindering the implementation of competency-based education in Tanzania. Likewise, Kasuga and Kalolo (2025) have found that the shortage of resources and professional support continue to be factors hindering the implementation of competency-based curricula in Tanzanian schools. From the Concerns Based Adoption Model (CBAM) perspective, these difficulties represent concerns of teachers about their abilities to adopt and implement the curricular innovations.

Additionally, the study found out that implementation issues greatly influence the development of 21st century skills such as critical thinking, creativity, collaboration, communication, problem solving and digital literacy among learners. Quantitative results indicated that poor provision of ICT facilities and lack of adequate teacher training was one of the major issues restricting the development of competencies. From qualitative data, it was clear that teachers heavily rely on group activities, practical lessons, and learners' involvement in fostering these competencies; however, this is often limited by the unavailability of resources and learning facilities. These findings corroborate the assertions by Catacutan et al. (2023) and Miglani et al. (2026) in which they argue that competency based education fosters higher

order thinking and practical competencies through appropriate learning environment. The findings are consistent with constructivist learning theory in that they emphasize active involvement of learners and cooperation as vital processes of constructing knowledge and developing competencies.

As far as the contextual factors are concerned, the study identified that the participation in MEWAKA/TCPD programs, cooperation between teachers, and availability of resources, ICT facilities, and the support from the school leaders play a significant role in implementing the curriculum. The regression analysis showed that participation in MEWAKA/TCPD programs is the most important variable that predicts the success in curriculum implementation, emphasizing the role of continuous professional development in improving the skills of the teachers. These results confirm the results obtained by Msamba et al. (2023), who indicated that the success of the professional development programs increases the preparedness of teachers to apply competency-based approaches. Similarly, Assey (2022) indicated that collaboration among teachers and the support from school leaders promote curriculum implementation.

Furthermore, the availability of resources and ICT facilities played a significant role in successful curriculum implementation. Schools with sufficient instructional materials and ICT resources enable better chances of implementing learner-centred instructions and developing 21st-century skills among learners. Such results resonate well with the views shared by Dumbuya (2024) about the inadequacies of infrastructure and technological incorporation as barriers to educational reforms focusing on competency-based skills. Munisi (2025) also stresses the need for an enabling environment and appropriate facilities to facilitate competency-based education. In turn, the positive impact of ICT facilities found in this study also underscores the growing significance of digital literacy in modern curriculum reforms.

Lastly, despite the positive perception of parental involvement and community support, their impact on the curriculum implementation process was relatively weak compared to other contextual factors. This observation can be interpreted as the indication that curriculum implementation is mostly influenced by the factors related to schools, such as teachers' competence and leadership support. At the same time, respondents highlighted the importance of parents' involvement in reinforcing learning outside schools. Overall, the findings demonstrate that the successful implementation of Tanzania's 2023 Revised Competency-Based Curriculum depends on a combination of teacher preparedness, professional support systems, adequate resources, technological infrastructure, and supportive educational leadership. Addressing these factors is essential for enhancing curriculum implementation and ensuring the effective development of learners' 21st-century skills.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study has examined the challenges experienced by the teachers in the implementation of the 2023 Competency-Based Curriculum of Tanzania and the effects of these challenges on the acquisition of the 21st-century skills among the learners in selected primary schools in Kyela district. The study findings indicate that while teachers understand the aims of the new curriculum and are determined to implement it, they continue to experience various challenges which affect its implementation. The main challenge includes lack of teaching and learning materials, ICT facilities, instructional materials, infrastructure and the need for professional development. The challenges affect the teachers' efforts to use learner-centered and competency-based approach as advocated by the curriculum.

The study further established that implementation challenges negatively affect the development of learners' 21st-century skills, including critical thinking, creativity, communication, collaboration, problem-solving, and digital literacy. While teachers employ strategies such as group discussions, practical activities, questioning techniques, and collaborative learning to promote these skills, the effectiveness of these approaches is often constrained by resource shortages and contextual limitations. Consequently, there remains a gap between the intentions of the revised curriculum and actual classroom practices.

Moreover, the study found that contextual factors play a crucial role in curriculum implementation. Participation in MEWAKA/TCPD programmes, teacher collaboration, resource availability, ICT access, and school leadership support were identified as significant predictors of successful implementation. The findings therefore suggest that the achievement of curriculum goals depends not only on teachers' individual efforts but also on the availability of supportive institutional and environmental conditions. Overall, strengthening teacher capacity, improving access to educational resources, and enhancing institutional support are essential for the successful implementation of the 2023 Revised Competency-Based Curriculum and the effective development of learners' 21st-century skills.

5.2 Recommendations

There is a need for the ministry to improve the continuous professional development programs through regular trainings and workshops for the teachers including the MEWAKA/TCPD program. The areas of development should include learner-centered methodologies, competency based assessments, ICT, and ways of fostering 21st century skills among learners. Through this process, the teachers will have the confidence, skills, and abilities to implement the revised

curriculum successfully. There is a need for the government, local governments, and other education stakeholders to ensure there is provision of teaching and learning materials in primary schools. Proper provision of textbooks, teaching materials, science materials, ICT and other materials will aid the competency based approach to learning and active participation of learners in their learning processes.

School administrators should foster collaborative professional practices among the teachers through peer learning, lesson study, mentoring, and experience sharing. The creation of robust professional learning communities in schools can aid the sharing of innovative pedagogical practices and the ability of teachers to collectively solve any implementation issues that may arise. This can aid in improving the quality of instruction and achieving consistent implementation of the curriculum. The government and development partners should provide financial resources in order to enhance the infrastructure and digital technology used in the implementation of the new curriculum. This is because making computers, the internet, digital learning platforms, and modern classrooms available would enhance the use of technology in teaching and learning, thus fostering the development of digital literacy skills among the learners. Lastly, there is a need to involve parents and members of the community in the education of the learners.

Declaration of Interest

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