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Classroom Environment and Use of Participatory Methods in Competency-based Curriculum in Secondary Schools of Kashongi Constituency Kiruhura District

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Abstract

This study examined the classroom environment and its influence on the use of participatory methods in the implementation of the competency-based curriculum (CBC) in secondary schools within Kashongi Constituency, Kiruhura District, Uganda. The study mainly focused on the objective: to assess the current state of classroom environment. A mixed methods approach was adopted, employing both quantitative and qualitative data collection techniques. Quantitative data were gathered using structured questionnaires from 74 teachers, while qualitative data were obtained through interviews with 3 head teachers. Descriptive statistics, and thematic analysis were used to analyze the data. Findings revealed that the classroom environment in most schools was generally conducive, particularly in terms of cleanliness (Mean≥4.00), ventilation (Mean≥4.00), lighting (Mean≥4.00) and teacher-student interaction (Mean≥4.00). However, challenges such as overcrowding, inadequate learning materials and limited ICT integration were identified. Qualitative findings supported these results, with head teachers reporting that improvements in physical layout, availability of teaching aids and learner-centered strategies enhanced student participation. The study concludes that while schools in Kashongi Constituency are making strides in implementing participatory teaching under CBC, structural and resource constraints still hinder optimal outcomes. It recommends investment in classroom infrastructure, provision of ICT tools, continuous teacher training in participatory pedagogy, and psychosocial support for learners. Policy implications include integrating minimum classroom standards into CBC guidelines and promoting school-community partnerships to improve behavioral and learning environments.

Keywords: Classroom environment; Participatory methods; Competency-Based Curriculum (CBC); Secondary schools; Kashongi Constituency; Kiruhura District;

Background of the study

Historical Background

The concept of competency-based education can be traced back to the early 20th century, when progressive education reformers like John Dewey advocated for a more student-centered approach to learning. Constructivism emphasizes that learners actively construct their own knowledge and understanding through experiences and interactions with their environment. In the initial stages of educational history, classroom settings frequently featured conventional teaching methodologies, wherein the teacher assumed a central

role in delivering knowledge to students (Khozaei et al., 2022). The United Nations' Sustainable Development Goals (SDGs) and the increasing focus on 21st-century skills have also influenced the study of classroom environment and participatory methods in competency-based curriculum. These global trends emphasize the importance of equipping students with skills such as critical thinking, collaboration, creativity, and communication, which can be fostered through participatory learning approaches in competency-based classrooms (Abdel Meguid & Collins, 2017).

In Africa, competency-based curriculum is an approach to education that focuses on helping students develop the skills and knowledge they need to succeed in specific areas or fields. This approach is particularly relevant in African secondary schools, where there is a need to prepare students for the demands of the workforce and higher education. Competency-based curriculum can help students develop critical thinking, problem-solving, and communication skills, as well as technical knowledge and skills (Imsen et al., 2017). The historical background of Africa is an important factor to consider when studying the use of participatory methods in competency-based curriculum in secondary schools. The legacy of the colonial education system, post-colonial developments, and recent trends all shape the classroom environment and teaching methods in African schools (Heflin et al., 2017).

Uganda boasts a rich educational history that has evolved over the years, shaping students' participation in competency-based curriculum in secondary schools through various historical, social, and educational factors (Alfred et al., 2023). During the colonial era, when Uganda was under British rule, the education system primarily served the interests of the colonial administration. Access to formal schooling was limited for the majority of Ugandan children, and the curriculum heavily reflected British educational models. Students' participation was often structured around rote learning and memorization (Hoque, 2018).

Theoretical Background

The study used the Meaningful Learning Theory, which was developed by David Ausubel in 1962. Ausubel argued that meaningful learning occurs when new information is integrated into the learner's existing cognitive structure, enabling deeper understanding and long-term retention. This perspective rejects rote memorization and instead emphasizes learner-centered pedagogy.

The theory strongly supports the use of student participatory methods. According to Ausubel, learners engage more effectively when they actively contribute to the learning process through discussions, group projects, and problem-solving activities. Such participatory approaches provide opportunities for students

to connect prior knowledge with new concepts, thereby fostering deeper comprehension and more durable learning outcomes.

In addition, the theory has important implications for the classroom environment under the competency-based curriculum (CBC). A classroom organized to promote interaction, inclusivity, and access to learning resources creates the conditions necessary for meaningful engagement. Real-life contexts, collaborative learning, and hands-on activities are not just supplementary practices but are integral to applying Ausubel's theory in CBC settings.

The theory also directly informs the variables of this study. For example, classroom layout and seating arrangement influence whether learners can interact meaningfully with peers and teachers. Student participation, measured through questioning, discussion, and collaborative work, is central to the learner-centered orientation advocated by Ausubel. Similarly, teaching approaches that emphasize participatory strategies rather than teacher-dominated methods align with the principles of meaningful learning.

Conceptual Background

In this study, the classroom environment refers to the physical and psychological aspects of the learning space that influence students' learning experiences (Malik & Rizvi, 2018). Key elements include layout and seating arrangement, lighting and ventilation, availability of teaching materials, and teacher–student interactions. The classroom environment is the independent variable which refers to the physical and psychological aspects of the learning space that facilitate or hinder students' learning experiences. Several aspects contribute to the classroom environment, including the layout and seating arrangement, lighting and ventilation, availability of teaching materials, and positive teacher-student interactions.

Proper lighting and ventilation are essential for creating a conducive learning environment (Widiastuti et al., 2020). The availability of teaching materials, such as textbooks, visual aids, technological resources, and other educational tools, is vital for supporting effective teaching and learning (Nicolaou et al., 2019). Positive interactions between teachers and students contribute to a supportive classroom environment (Gray et al., 2017). The classroom environment plays a critical role in shaping students' motivation, engagement, and use of participatory methods in competency-based curriculum (Berkowitz et al., 2017).

Contextual Background

The quality of the classroom environment in secondary schools is a critical factor that significantly impacts students' learning experiences, academic performance, and overall well-being. Numerous scholars and researchers have conducted studies to explore various aspects of the classroom environment and its effects on students. According to Walker and Graham (2021), a positive and supportive teacher-student relationship is essential for a high-quality classroom environment. Teachers who establish a warm and caring relationship with their students can foster a sense of belonging, which can lead to increased student engagement and motivation. A positive classroom climate is characterized by respect, empathy, and cooperation among students and teachers. A study found that a positive classroom climate can lead to increased student engagement, motivation, and academic achievement (Walker & Graham, 2021).

A well-maintained and organized classroom with appropriate lighting, temperature, and seating can promote student engagement and focus (Barrett et al., 2019). The teaching strategies used by teachers can also affect the quality of the classroom environment. Student-centered teaching strategies, such as cooperative learning and project-based learning, can promote critical thinking, creativity, and problem-solving skills. The integration of technology into the classroom also impacts the quality of the learning experience.

Han (2021) found that a well-organized and supportive classroom setting fosters active use of participatory methods in competency-based curriculum and enhances students' cognitive development. Similarly, Hayat et al. (2020) revealed a strong correlation between positive classroom environments and academic achievement among secondary school students. Furthermore, Gray et al. (2017) found that a positive and inclusive climate contributes to reduced stress levels and improved mental health outcomes.

Baum (2018) explored the impact of classroom design elements such as seating arrangements, lighting, and spatial organization on students' attention, behavior, and academic performance. Their findings underscored the importance of ergonomic and visually stimulating classroom environments in facilitating effective learning experiences.

According to the Uganda Bureau of Statistics (2022), high poverty rates in Kiruhura affect the ability of families to support educational expenses, contributing to high dropout rates among students. Despite these challenges, there is a strong community emphasis on education, which fosters local efforts to improve school conditions and educational outcomes.

In Kashongi's secondary schools, the classroom environment varies significantly. Many classrooms are overcrowded and suffer from poor physical conditions due to financial constraints. The lack of adequate learning materials, such as textbooks and multimedia resources, reflects broader socioeconomic challenges in the area. The classroom environment also encompasses the interactions between students and teachers, which are critical for effective learning and successful implementation of competency-based curriculum. Research indicates that positive student-teacher relationships and a supportive learning atmosphere are essential for effective educational outcomes (Sserwanja, 2021). In Kashongi, creating a conducive learning environment remains a significant challenge due to the prevailing resource limitations. The main objective of the study was to assess the influence of classroom environment on use of participatory methods in a competency-based curriculum in secondary schools of Kashongi Constituency, Kiruhura District. This paper only focused on the current state of classroom environment conditions in secondary schools of Kashongi Constituency, Kiruhura District.

Significance of the Study

The findings of this study may inform evidence-based policy decisions aimed at improving classroom environments and strengthening participatory practices aligned with the competency-based curriculum (CBC) in Ugandan secondary schools.

Academically, the study contributes to a deeper understanding of the interplay between the learning environment and learner-centered approaches within CBC. This knowledge may guide future research on how physical, social, and instructional settings influence active student engagement.

For practitioners, especially school administrators, the results provide practical insights into areas that require improvement to foster student-centered learning. These may include better classroom layouts, adequate teaching materials, and supportive teacher–student relationships, all of which encourage active learning strategies.

Policymakers and education stakeholders may also draw from this study to allocate resources more effectively, including investments in teacher training, instructional materials, and infrastructure development. Such interventions would enhance the adoption of learner-centered pedagogies under competency-based curriculum , leading to improved student participation and educational outcomes.

In summary, this research provides both theoretical and practical contributions by linking classroom environments to participatory teaching practices and offering actionable recommendations for enhancing competency-based curriculum implementation in secondary schools.

Literature Review

The Current State of Classroom Environment in Secondary Schools

The quality of the classroom environment in secondary schools is a critical factor that significantly impacts students' learning experiences, academic performance, and overall well-being. Numerous scholars and researchers have conducted studies to explore various aspects of the classroom environment and its effects on students. This literature review provides an overview of key findings and insights from different scholarly works related to the quality of classroom environment in secondary schools.

According to (Walker & Graham, 2021), a positive and supportive teacher-student relationship is essential for a high-quality classroom environment. Teachers who establish a warm and caring relationship with their students can foster a sense of belonging, which can lead to increased student engagement and motivation. A positive classroom climate is characterized by respect, empathy, and cooperation among students and teachers. A study found that a positive classroom climate can lead to increased student engagement, motivation, and academic achievement (Walker & Graham, 2021).

A well-maintained and organized classroom with appropriate lighting, temperature, and seating can promote student engagement and focus (Barrett et al., 2019). The teaching strategies used by teachers can also affect the quality of the classroom environment. Student-centered teaching strategies, such as cooperative learning and project-based learning, can promote critical thinking, creativity, and problem-solving skills. The integration of technology into the classroom also impacts the quality of the learning experience.

Research by (Han, 2021) found that a well-organized and supportive classroom setting fosters active use of participatory methods in competency-based curriculum and enhances students' cognitive development. Similarly, (Hayat et al., 2020) revealed a strong correlation between positive classroom environments and academic achievement among secondary school students.

Furthermore, (Gray et al., 2017), found a positive and inclusive climate contributes to reduced stress levels and improved mental health outcomes. Research by (Baum, 2018) explored the impact of classroom design elements such as seating arrangements, lighting, and spatial organization on students' attention, behavior,

and academic performance. Their findings underscored the importance of ergonomic and visually stimulating classroom environments in facilitating effective learning experiences.

Methodology

The study adopted a convergent mixed-methods design, which was appropriate for addressing the complexity of the research problem. This design enabled the collection of both quantitative and qualitative data concurrently, allowing for triangulation and a more comprehensive understanding of how the classroom environment influences the use of participatory methods in the competency-based curriculum (CBC). Quantitative data were obtained from teachers using structured questionnaires, while qualitative data were gathered from head teachers through interviews.

The research was conducted in secondary schools of Kashongi Constituency, Kiruhura District. The area was purposively selected because of reported challenges in the implementation of participatory methods under CBC. The study population comprised 90 teachers and 3 head teachers from the three government-aided secondary schools in the constituency. Using Yamane's formula (1967) at a 0.05 margin of error, a sample size of 74 teachers and 3 head teachers (77 participants in total) was determined. Teachers were selected using simple random sampling to avoid bias, while head teachers were chosen purposively due to their administrative roles and relevant knowledge.

Two main data collection methods were employed: a self-administered questionnaire for teachers and an interview guide for head teachers. The questionnaire was structured into two sections: background characteristics and study variables (classroom environment and participatory methods), measured using a five-point Likert scale. The interview guide contained open-ended questions designed to provide deeper insights into the study variables.

To ensure data quality control, both the validity and reliability of the instruments were tested. Content validity was assessed by expert reviewers in curriculum and education, resulting in a Content Validity Index (CVI) of 0.92 for the teacher questionnaire and 0.83 for the head teachers' interview guide, both above the acceptable threshold of 0.80. Reliability was determined using the split-half method, producing Guttman Split-Half coefficients of 0.771 for classroom environment and 0.813 for use of participatory methods, indicating acceptable reliability.

The data collection procedure followed ethical guidelines. Approval letters were obtained from Bishop Stuart University Research Ethics Committee (BSU-REC) and the District Education Officer (DEO) of Kiruhura District. Consent was sought from respondents before participation, and anonymity,

confidentiality, and voluntary participation were strictly maintained. Given the context of COVID-19 and Ebola risks, all data collection adhered to Ministry of Health guidelines, including face masks, sanitizers, and physical distancing.

For data analysis, quantitative data were coded and analyzed using SPSS version 25. Descriptive statistics such as means and standard deviations were used to assess the current state of classroom environment and the extent of use of participatory methods. Pearson product-moment correlation was employed to establish the relationship between classroom environment and participatory methods. Regression analysis was also considered to identify predictors of student participation. Qualitative data from interviews were analyzed thematically, with responses categorized into themes and patterns to complement the quantitative findings.

Overall, the methodology was designed to systematically capture both structural and experiential dimensions of classroom environment and participatory methods. This approach ensured that the study's objectives were comprehensively addressed and that the findings were credible, valid, and reliable.

Results

The overall response rate of study was 78.4%, which is considered highly satisfactory for a study of this nature (Mugenda & Mugenda, 2003).

Bio-data of the respondents

The bio-data section presents the demographic characteristics of the respondents who participated in the study. Understanding the demographic distribution of respondents helps to contextualize their perceptions and responses concerning the classroom environment and use of participatory methods. This section includes gender, age, and academic qualifications for teachers.

Table 1: Biodata of the Teachers

Biodata of Teachers		Frequency	Percentage
Gender	Male	36	62.1
	Female	22	37.9
	Total	58	100.0
Age	18-30	34	58.6
	31-40	14	24.1
	41-50	10	17.2
	Total	58	100.0
Level of education	Bachelors Degree	54	93.1

	Post graduate diploma	4	6.9
	Total	58	100.0

Source: Primary data, 2025

Table 1 outlines the demographic characteristics of the 58 teachers who responded to the questionnaire. The majority were male (62.1%), while females comprised 37.9%. This reflects a common gender imbalance observed in many Ugandan secondary schools, where male teachers tend to dominate the workforce.

In terms of age, the highest proportion of teachers (58.6%) were aged between 18–30 years, indicating a youthful teaching workforce. Teachers aged between 31–40 years made up 24.1%, while those in the 41–50 year range accounted for 17.2%. This youthful age structure suggests potential openness to innovative teaching methods such as participatory approaches in CBC, although it may also reflect limited teaching experience in some cases.

Educationally, an overwhelming majority of the teachers (93.1%) held bachelor's degrees, while 6.9% had postgraduate diplomas. This indicates that most teachers were professionally qualified to teach at the secondary level and were likely familiar with the principles of the competency-based curriculum.

The current state of classroom environment in secondary schools of Kashongi Constituency Kiruhura District

This section presents and interprets findings regarding the current state of classroom environments in the secondary schools of Kashongi Constituency, Kiruhura District. The responses were gathered from teachers to understand how the classroom environment supports or hinders learning and participation. The data provides insights into physical, social, and instructional aspects of the classroom environment, which are crucial for implementing a competency-based curriculum effectively.

Table 2: Descriptive Statistics on the current state of classroom environment in secondary schools from the teachers' perspective

The current state of classroom environment in secondary schools from the teachers' perspective	N	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree	Mean	Std. Deviation

My classroom has adequate natural light and ventilation	58	0 (0.0%)	4 (6.9%)	0 (0.0%)	22 (37.9%)	32 (55.2%)	4.41	.825
The furniture in my classroom is comfortable and conducive to learning	58	2 (3.4%)	8 (13.8%)	4 (6.9%)	30 (51.7%)	14 (24.1%)	3.79	1.082
My classroom is clean and free from distractions like noise or cluster	58	2 (3.4%)	2 (3.4%)	8 (13.8%)	22 (37.9%)	24 (41.4%)	4.10	1.012
The available teaching materials and equipment are in good conditions and readily accessible.	58	4 (6.9%)	8 (13.8%)	6 (10.3%)	32 (51.7%)	10 (17.2%)	3.59	1.150
The size of my classroom allows for effective engagement for all students	58	2 (3.4%)	16 (27.6%)	0 (0.0%)	20 (34.5%)	20 (34.5%)	3.69	1.312
Students feel comfortable expressing their ideas and asking questions in my class	58	0 (0.0%)	4 (6.9%)	6 (10.3%)	30 (51.7%)	18 (31.0%)	4.07	.842
The classroom environment supports inclusivity and celebrates diversity among students	58	2 (3.4%)	2 (3.4%)	6 (10.3%)	34 (58.6%)	14 (24.1%)	3.97	.906
The lesson plans I use promote active learning and student engagement	58	0 (0.0%)	0 (0.0%)	2 (3.4%)	24 (41.4%)	32 (55.2%)	4.52	.574
The available technology and resources enhance my ability to deliver effective lessons	58	2 (3.4%)	6 (10.3%)	4 (6.9%)	32 (55.2%)	14 (24.1%)	3.86	1.026
There is a school-wide focus on continuous improvement and innovation in teaching practices	58	2 (3.4%)	0 (0.0%)	6 (10.3%)	36 (62.1%)	14 (24.1%)	4.03	.823
Average	**58**						**4.00**	**0.955**

Source: Primary data, 2025

The study sought to establish the current state of classroom environments in secondary schools of Kashongi Constituency from the teachers' perspective. The findings, as presented in Table 4, reveal that a majority of teachers perceive the classroom environment as generally conducive to learning, with several components receiving strong positive ratings. For instance, the statement "My classroom has adequate natural light and ventilation" recorded the highest mean of 4.41, with 93.1% of respondents agreeing or strongly agreeing, indicating that physical conditions such as lighting and airflow are favorable in most classrooms. Similarly, 79.3% of teachers agreed that their classrooms are clean and free from distractions, as reflected by a high mean of 4.10, suggesting that hygiene and a quiet learning atmosphere are well maintained.

The findings also highlight a relatively high level of psychosocial support within classrooms. For example, a mean of 4.07 was recorded for the statement "Students feel comfortable expressing their ideas and asking questions in my class," implying that the social climate encourages learner participation and open communication. Moreover, the aspect of inclusivity scored a mean of 3.97, with 82.7% of teachers acknowledging that the classroom environment supports diversity, demonstrating a commitment to equity and belonging.

However, some items scored moderately, pointing to areas in need of improvement. The mean score for classroom furniture was 3.79, with 17.2% of teachers expressing dissatisfaction. Additionally, the adequacy of teaching materials and equipment received a lower mean of 3.59, and 20.7% of teachers disagreed that these materials were in good condition and accessible. This suggests that while teaching spaces are clean and well-lit, they may lack sufficient instructional resources. The item on classroom size yielded a mean of 3.69, with over a quarter of respondents (27.6%) indicating that their classrooms are not spacious enough to facilitate effective engagement, a sign of overcrowding in some schools.

Importantly, the use of technology and innovation was viewed favorably by most teachers, with a mean of 3.86 and 79.3% agreement, though some noted resource constraints. The highest-rated item was "The lesson plans I use promote active learning and student engagement," with a mean of 4.52 and 96.6% agreement, suggesting that most teachers are designing lessons that align with learner-centered pedagogical principles. Overall, the average mean score for all classroom environment indicators was 4.00, indicating a generally favorable classroom environment, albeit with notable gaps in infrastructure and teaching resources.

Qualitative Responses from Head Teachers

This section presents a thematic analysis of the qualitative data obtained through interviews with head teachers from the three secondary schools in Kashongi Constituency. The interviews aimed to gather in-depth insights into how classroom environments and instructional strategies influence students' participation in the competency-based curriculum. Thematic areas include student-teacher relationships, classroom management, behavioral challenges, physical learning environments, and instructional improvements.

Table 3: Thematic Analysis Summary of Head Teachers' Responses

Research Question / Issue	Theme	Sub-Theme	Sub-Theme Pervasiveness	Compelling Quote
How do teachers promote positive student-teacher relationships and student-to-student collaboration?	Promoting Positive Relationships	Student-Teacher Relationships	All three schools	"Through being approachable… and giving immediate feedback… a teacher is supposed to bring back their scripts in time and help them in doing corrections." (School A)
		Peer Collaboration	All three schools	"Through group work… encouraging role play, group discussions, presentations, debate…" (School B)
What measures are taken to address behavior issues and create a safe learning environment?	Managing Student Behavior	School Rules and Leadership Structures	All three schools	"Creating student leaders… class councilors, chairperson school council… helps in promoting discipline." (School C)
		Counseling and Assemblies	All three schools	"Guidance and counseling… and spiritual talks in the church help learners know how to behave." (School B)
What are the biggest challenges you face in encouraging high-quality student participation?	Barriers to Participation	Infrastructural and Resource Limitations	All three schools	"Lack of modern ICT gadgets and inadequate laboratory equipment hinder student participation." (School C)
		Psychological Barriers and Peer Influence	All three schools	"Some learners fear to be criticized… peer pressure makes them reluctant to speak." (School A)
How does the physical environment of the classroom	Role of Physical Space	Impact of Infrastructure	All three schools	"Congestion in the classes makes some people hide and do bad behavior… some

influence student behavior and participation?				sleep, talk, and can't be easily detected." (School B)
		Classroom Comfort and Learning Aids	All three schools	"Talking classrooms, presence of charts, and enough furniture have improved participation." (School C
What specific aspects of the classroom environment contribute to a sense of belonging and active learning?	Enablers of Participation	Learner-Centered Practices	All three schools	"Appropriate teaching methods that are learner centered create a welcoming environment." (School C)
		Feedback and Inclusivity	Two schools	"Giving immediate feedback to learners helps build confidence and participation." (School A)
Can you share any examples where changes in classroom environment led to improved participation?	Improvements and Impact	Physical and Instructional Enhancements	All three schools	"Good sitting arrangements and availability of computers have enabled students to conduct research and participate more." (School B)

The qualitative data from interviews with head teachers revealed rich insights into the state of classroom environments and the use of participatory methods in implementing the competency-based curriculum (CBC) in secondary schools in Kashongi Constituency. The data were analyzed thematically, and five major themes emerged: promoting positive relationships, managing student behavior, barriers to participation, role of physical space, and enablers of participation.

Theme 1: Promoting Positive Relationships

A strong focus emerged on the role of positive relationships between teachers and students, and among students themselves, as critical enablers of participation and engagement. Head teachers described deliberate efforts to create welcoming, respectful, and collaborative classroom cultures. These included learner-centered methods, group work, and the encouragement of open communication.

One head teacher noted, *"Through being approachable… and giving immediate feedback… a teacher is supposed to bring back their scripts in time and help them in doing corrections"* (School A), highlighting how feedback mechanisms reinforce positive relationships. Another remarked, *"Through group work… encouraging role play, discussions, presentations, and debate… students get to know each other and feel part of the learning process"* (School B). Such practices enhance both social interaction and academic engagement, forming a foundation for participatory learning.

Theme 2: Managing Student Behavior

The schools adopted multi-level strategies to address behavioral issues and create safe, supportive learning environments. These included student leadership structures, consistent rules and regulations, spiritual and moral guidance, and regular counseling.

One head teacher emphasized, *"Creating student leaders like class councilors and a school chairperson helps promote discipline and responsibility"* (School C). Another shared, *"We address issues like alcoholism, escapism, and disrespect through assemblies and spiritual talks in church. These help learners know how to behave"* (School B). The integration of community values into school-based behavioral interventions reflected a holistic approach to discipline.

Theme 3: Barriers to Student Participation

Head teachers identified both structural and psychological barriers to effective student participation. Key constraints included inadequate infrastructure, limited teaching materials, digital resource gaps, language barriers, and emotional insecurity.

One administrator observed, *"Lack of modern ICT gadgets and inadequate laboratory equipment hinder student participation"* (School C.), while another explained, *"Some learners fear to be criticized… peer pressure makes them reluctant to speak"* (School A). These limitations diminish learners' confidence and restrict the full implementation of CBC's participatory ideals.

Theme 4: Role of Physical Space

The physical environment of the classroom was seen as significantly shaping student behavior and participation. Head teachers cited issues such as overcrowded rooms, broken furniture, poor ventilation, and noise as impediments, while improved layouts, cleanliness, and visual aids were recognized for their positive influence.

As one head teacher described, *"Congestion in the classes makes some students hide and do bad behavior… some sleep or talk and can't be easily detected"* (School B). In contrast, another school leader noted improvements: *"Talking classrooms, presence of charts, and enough furniture have improved participation"* (School C.). These findings underscore the importance of investing in the physical learning environment to foster engagement.

Theme 5: Enablers of Participation and Instructional Improvements

When asked to share examples of changes that led to improved participation, head teachers cited efforts such as improved seating arrangements, provision of textbooks and computers, and learner-centered instructional reforms.

One head teacher reported, *"The school has provided enough computers… this has enabled learners to conduct research and present findings in class"* (School A). Another shared, *"The good sitting arrangement has enabled students to participate… now all learners know that it is a must to participate as part of the new curriculum"* (School B). These efforts reflect both material and pedagogical adjustments that support the CBC approach.

In summary, the qualitative findings reveal that effective implementation of participatory methods in CBC is highly dependent on both human and environmental factors. Positive relationships, clear behavioral management strategies, enabling physical environments, and targeted instructional improvements all contribute to learner participation. However, challenges such as infrastructural deficits, psychological barriers, and socio-cultural limitations must be addressed to realize the full potential of competency-based education.

Discussion of Results

The Current State of Classroom Environment in Secondary Schools of Kashongi Constituency Kiruhura District

The findings revealed that the classroom environment in most secondary schools within Kashongi Constituency is generally supportive of learning, though not without challenges. From the teachers' perspective, aspects such as classroom cleanliness, lighting, ventilation, and teacher-student relationships were rated highly. However, teachers expressed slightly more conservative views on the adequacy of furniture and resources.

These findings align with Walker and Graham (2021), who emphasized the role of a positive classroom climate in increasing student motivation and engagement. Additionally, studies by Barrett et al. (2019) and Han (2021) support the idea that well-structured classroom environments characterized by proper lighting, furniture, and supportive teacher-student interactions foster cognitive development and participatory learning.

However, teachers highlighted gaps in access to learning materials and instructional resources. The mean scores for availability of teaching aids, use of technology and classroom furniture were noticeably lower compared to other aspects. Teachers, in particular, expressed concern over the inadequacy of instructional resources, which aligns with findings by Berkowitz et al. (2017) that resource scarcity can undermine learning quality, especially in rural or underfunded settings.

Qualitative findings supported these results. Head teachers reported that poor infrastructure, limited teaching materials, and overcrowding remained significant impediments to creating optimal learning environments. For instance, one head teacher stated, *"Congestion in the classes makes some people hide and do bad behavior… some sleep, talk, and can't be easily detected,"* underscoring how physical layout affects both behavior and learning.

Nonetheless, schools had initiated efforts to improve classroom conditions. Head teachers mentioned improvements such as group seating arrangements, better ventilation, and the introduction of "talking classrooms" with visual learning aids. These interventions were reported to enhance both learner engagement and behavioral discipline.

In light of the Meaningful Learning Theory by David Ausubel (1962), the findings suggest that classrooms in Kashongi Constituency are moving towards active, student-centered learning environments. However,

the lack of physical resources and the inconsistent application of learner-centered methods indicate that more systematic efforts are needed to align classroom environments fully with CBC demands.

Conclusions

Based on the findings, it can be concluded that the classroom environment in secondary schools within Kashongi Constituency is generally conducive to learning, with strengths noted in cleanliness, ventilation, teacher-student relationships, and the psychological climate. However, challenges such as inadequate learning materials, limited ICT resources, and overcrowded classrooms still constrain the full potential of these environments.

Recommendations

To address the challenges identified in this study and enhance the effectiveness of the competency-based curriculum, the following actionable recommendations are proposed:

Based on the findings and conclusions of the study, the following recommendations are made to improve classroom environments and enhance the use of participatory methods in the implementation of the competency-based curriculum in secondary schools of Kashongi Constituency:

The Ministry of Education and Sports, in collaboration with district education authorities and school management committees, should prioritize the provision of adequate classroom space, desks, and instructional materials. Addressing issues such as overcrowding, poor ventilation, and limited furniture will significantly improve the classroom environment. Additionally, the integration of visual aids and “talking classrooms” should be scaled up across all schools to enhance engagement and inclusivity.

Limitations

While the study achieved its objectives and generated insightful findings, several limitations were encountered during the research process. These limitations should be considered when interpreting the results and generalizing the findings beyond the context of Kashongi Constituency.

The study was conducted exclusively in three secondary schools within Kashongi Constituency, Kiruhura District. Although the findings provide deep insights into the classroom environment and participatory methods in this area, they may not fully represent the situation in other districts or urban settings with different socio-economic and infrastructural contexts.

The study was constrained by time and financial limitations, which affected the breadth of data collection. Some schools had limited access to digital records or teaching materials, making it difficult to triangulate quantitative data with institutional documents or performance reports.

Although the questionnaires and interviews were designed in English, some students experienced difficulty comprehending certain questions due to limited language proficiency. While assistance was provided where needed, the possibility of misinterpretation may have slightly influenced the accuracy of some responses.

The study relied on self-reported data from students and teachers, which may be subject to social desirability bias. Respondents may have overstated the extent of participatory practices or the conduciveness of the classroom environment, particularly in the presence of school authorities or researchers.

Although not a central focus of this study, it is worth noting that the classroom environments and teaching methods observed may still have been affected by the lingering disruptions from the COVID-19 pandemic. This includes irregular school attendance, reduced physical contact, and adapted instructional routines, which may have impacted how participatory methods were implemented.

Despite these limitations, the study provides valuable baseline data and context-specific insights that can inform policy, practice, and further research into CBC implementation in rural Ugandan secondary schools.

Authors' abbreviations

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Authors' contributions

The authors of this manuscript made the following contributions to this manuscript: Concept: **GK**, conceived the concept; Data collection: **KRM**; Data analysis: First draft: **GK**, **AA**, **RT**. Final revision: **GK**, **AA**, **RT**. Read and approved final manuscript: **GK**, **AA**, **RT**.

Competing interests

The authors declare that they have no competing interests.

List of Abbreviations

CBC – Competency-Based Curriculum

CVI – Content Validity Index

DEO – District Education Officer

ICT – Information and Communication Technology

SPSS – Statistical Package for Social Sciences

UBOS – Uganda Bureau of Statistics

BSU-REC – Bishop Stuart University Research Ethics Committee

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