

Secondary school teachers' conception and levels of use of competence-based assessment in Tanzania

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Abstract

This qualitative descriptive study investigated secondary school teachers' conception and levels of implementation of Competence-Based Assessment (CBA) in Morogoro Municipality. Guided by constructivist theory and the Concerns-Based Adoption Model, the research involved interviews with 16 secondary school teachers as participants, purposively selected from 8 randomly chosen government schools. Data were collected through semi-structured interviews with open-ended questions, enabling participants to freely express their perspectives, experiences, and behaviors related to CBA. The data were analyzed using thematic analysis, which involved identifying, organizing, and interpreting patterns within the interview transcripts to uncover recurring ideas, perceptions, and practices. The findings revealed varied perceptions of CBA among the teachers. While a few viewed CBA as an extended version of traditional assessment, the majority saw it as a comprehensive approach to assessment, and some considered it a performance-based or criterion-referenced method. The study also found that CBA implementation in schools was limited. Most teachers were at an early non-user stage, with a few making attempts to progress to the preparation stage, as described in the Levels of Use framework. The study recommends that the government strengthen teacher training, provide adequate resources, and offer ongoing support to improve the understanding and implementation of CBA.

Keywords: assessment of learning, assessment for learning, concern-based adoption model, levels of use framework, teachers' understanding of assessment

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1. Introduction

Competence-Based Assessment (CBA) emerged in the 1970s in western-world countries in Europe, U.S.A and Australia as part of broader educational reforms aimed at aligning learning outcomes with real-world skills. Initially developed in vocational education (Adamson & Darling-Hammond, 2014; Bunda & Sanders, 1979), CBA focused on assessing students' ability to apply knowledge and skills in practical contexts rather than relying solely on theoretical exams. The approach gained traction in the 1990s as countries sought to better prepare students for the workforce, particularly in response to the growing demand for skilled labour (Wong, 2020). By emphasizing practical competence, CBA shifted education towards more personalized, outcome-driven approaches. Over time, its scope expanded beyond vocational training to K-12 and higher education to enhance skills development. Developing countries, including those in Sub-Saharan Africa, followed suit in recent decades (Akinrinola et al., 2020).

The adoption of CBA, however, demonstrates significant variation between developed and developing countries due to differences in infrastructure, resources, and teacher preparedness. In developed countries, CBA is typically supported by strong educational systems, advanced technology, and well-trained educators (Akinrinola et al., 2020; Allen, 2021). Governments in these countries have invested heavily in teacher training, digital tools, and curriculum development to enhance competency assessment (Wong, 2020). Education systems in these countries emphasize more on personalized learning pathways, enabling students to progress at their own pace based on demonstrated competencies. In contrast, developing countries face numerous challenges in adopting CBA (Akinrinola et al., 2020). With resource limitations, large class sizes, and restricted access to technology continuing to impede its implementation (Mwashighadi & Kitainge, 2023), the lack of pedagogical skills and understanding among teachers appear to significantly impede teachers' ability to effectively design and apply CBA (Christ et al., 2014). Largely, this gap is a result of ineffective diffusion process of this innovative assessment approach from western countries (Makwinya et al., 2022), characterized by limited access to professional development opportunities and reliance on outdated teacher training programs (Mitu, 2014; Nzima, 2016). Additionally, systemic challenges such as a lack of robust policy support (Makwinya, 2022) and insufficient funding for educational reforms further exacerbate the issue (Makunja, 2016; Munoz & Araya, 2017). In many cases, teachers may be personally learning to manage CBA informally, relying on trial and error to navigate its implementation, which result in inconsistent implementation. Given these contexts, it is crucial to investigate the current understanding and practices of teachers in implementing CBA to address these gaps and improve its effectiveness. This study was designed to serve this need.

1.1 Study context and purpose

CBA was introduced alongside Competence-Based Education (CBE) in the early 2000s, with significant curriculum revisions in 2007 (MoEVT, 2007; TIE, 2013, URT, 2014). The current secondary school curriculum requires teachers to evaluate student competencies using authentic and performance-based methods (Juma & Patel, 2024), which include field observations, practical demonstrations, problem-solving tasks, portfolios, projects, concept maps, and oral presentations (Ishemo, 2021). These approaches are intended to make education more practical, relevant, and aligned with real-world demands. However, Tanzania's experience with CBA reflects the broader challenges faced by developing countries in adopting educational innovations developed from the western world. While policy frameworks supporting CBA are in place, its practical implementation appears to be constrained by ill-resourced contexts (Makunja, 2016; Kinyota, 2020) and unreliable teacher professional development (Komba & Mwakabenga, 2019; Mgaiwa & Milinga, 2024), leading to lacking

pedagogical skills for designing and conducting competency-based assessments. That is to say, the CBA was introduced alongside competence-based curriculum—a foundational innovation—without sufficient preparation, as teachers were not adequately trained, nor were school environments tailored to support these changes. In light of these circumstances, examining how implementers understand and engage with such innovations is crucial. This study served this purpose and was guided by two research questions:

- (i) What are the secondary school teachers' conceptions regarding the CBA?
- (ii) How do secondary school teachers implement CBA in schools?

2. Literature

2.1 Defining CBA

CBA has gained momentum across various educational systems, reflecting a growing emphasis on practical skills and real-world application. This shift contrasts with traditional assessment approaches that focus primarily on memorized knowledge. Scholars have, therefore, defined CBA in various ways, reflecting diverse interpretations of its principles and practices. Some (e.g., Wong, 2020) define CBA as an assessment approach that emphasizes the application of knowledge, skills, and attitudes to real-world tasks, aiming to ensure that learners can demonstrate competence in specific areas. Others (e.g., Schuwirth & Ash, 2013) look at CBA as a flexible, formative process, where assessment occurs continuously to guide learners' development. Such scholars emphasize the holistic nature of CBA, highlighting its focus on both learning processes and outcomes, assessing students' input, engagement, and performance. Besides, some scholars (e.g., Gallardo, 2020; Juma & Patel, 2024; Olson & Krysiak, 2021) emphasize the alignment of Competence-Based Assessment (CBA) with industry or societal needs, highlighting its criterion-referenced nature, where students are assessed against specific, predefined standards relevant to real-world contexts. This approach ensures that assessments measure students' ability to meet these competency benchmarks, focusing on practical skills and knowledge applicable to professional or societal demands, rather than relative performance. These variations reflect the evolving understanding of CBA in educational settings, emphasizing different aspects like application, learner focus, and contextual relevance.

Based on such definitions, CBA largely appears to focus on measurable and observable outcomes. As such, CBA relies heavily on assessment formats that are authentic and performance-focused, which require students to demonstrate their competencies in practical scenarios, providing a clear indication of their ability to apply knowledge (Wong, 2020). Measuring progress and outcomes has largely been carried out through portfolio, practical demonstrations, and observation of hands-on skills. Portfolios allow students to collect evidence of their work over time, showcasing their growth and learning process (Adamson & Darling-Hammond, 2014). Practical demonstrations assess hands-on skills in subjects like science or vocational training, while problem-solving tasks evaluate students' ability to tackle real-life challenges (Akinrinola et al., 2020). Oral presentations and projects are also commonly used, helping to assess critical thinking, communication, and creativity (Wong, 2020). These methods align learning outcomes with the skills needed in professional environments, making education more relevant and practical, and ensuring that students are adequately prepared for the workforce. The conceptualization of CBA, however, varies significantly in different contexts, with terms such as alternative assessment, ability testing, and assessment for learning outcomes often used interchangeably (Christ et al., 2014). These terms highlight diverse aspects of the assessment process, emphasizing a departure from traditional high-stake examinations to more holistic measures.

Despite the widespread adoption of CBA, defining "competence" remains a contentious issue. Literature indicates varying interpretations of competence, with no universal consensus on its exact meaning. Bunda and Sanders (1979) and Gallardo (2020) categorize competence definitions into two main groups: one that views competence as a hypothetical construct, often used in curriculum development, and another that sees competence as a standard of performance, closely related to mastery or criterion levels. This second view is more aligned

with the operational focus of CBA, which centers on the demonstration of skills and knowledge against predefined standards. Other scholars have grouped definitions of competence into five categories, offering a more nuanced understanding of its role in education (Wong, 2020; Mwashighadi & Kitainge, 2023). These include competence as the ability to perform at desired levels, the ability to select and apply relevant attributes (knowledge, skills, attitudes), and the possession of those attributes. More comprehensive definitions encompass elements of all these perspectives. For instance, the National Council for Technical and Vocational Training (NACTVET) in Tanzania identifies competence descriptors, including knowledge, skills, understanding, and broader attributes (NACTVET, 2022). Gallardo (2020) and Olson and Krysiak (2021) note that a competence-based assessment seeks to measure in learners the ability to master a certain definable competence descriptor. Generally, CBA is an approach that assesses not just knowledge, but also learners' practical skills and critical thinking

2.2 Importance of CBA

CBA is crucial in modern education as it focuses on evaluating students' ability to apply knowledge and skills in real-world contexts. As CBA emphasizes practical, outcome-driven learning (Gallardo, 2020), it ensures students are better prepared for the workforce by assessing competencies like problem-solving, critical thinking, and collaboration, which are essential in professional environments. CBA also promotes personalized learning, allowing students to progress based on demonstrated abilities rather than time spent in class (Wong, 2020). Moreover, it encourages continuous improvement through ongoing feedback, fostering a deeper understanding of subject matter. In this way, CBA aligns educational outcomes with global labor market needs, ensuring students are equipped with the skills necessary for success in their careers. CBA seeks to assess students' mastery of the knowledge and skills they are expected to acquire as they progress through their education (Munoz et al., 2021). This approach aligns with the growing recognition of the need for education to go beyond academic achievement, focusing on life skills that enable individuals to function effectively in society (Wong, 2020). Furthermore, CBA is crucial in preparing students for the Fourth Industrial Revolution, which requires a workforce skilled in areas that go beyond traditional academic knowledge, integrating technologies across the physical, digital, and biological spheres (Juma & Patel, 2024).

2.3 Challenges facing CBA implementation

The implementation of CBA faces significant challenges, particularly in developing countries. While CBA aims to shift education from rote memorization to the development of practical skills and competencies, its execution often falls short due to several factors. In developed countries, CBA benefits from strong infrastructure, advanced technology, and well-trained educators who can effectively integrate competency-based methods into the curriculum (Wong, 2020). However, in many developing countries, the picture is different. Teachers often lack the necessary training and resources to implement CBA effectively (Akinrinola et al., 2020; Makunja, 2016; Makwinya et al., 2022; Mgaiwa & Milinga, 2024; Zamda et al., 2024). Additionally, large class sizes, limited access to technology, and inadequate policy support further hinder the successful implementation of CBA (Ismail et al., 2024; Juma & Patel, 2024). Therefore, despite the theoretical promise of CBA to enhance student learning and better align education with real-world skills, these barriers often prevent it from achieving its full potential in many educational systems. These challenges have resulted in inconsistencies in its application, with some teachers reverting to traditional knowledge-based assessments (Ismail et al., 2024; Kigwilu & Mokoro, 2022). Therefore, further investment in teacher training, resources, and policy reforms is necessary to ensure the successful implementation of CBA.

3. Theoretical underpinnings

This study was guided by the Concern-Based Adoption Model (CBAM) (Hall & Hord, 2020), with a specific focus on its Levels of Use component. CBAM is a widely recognized framework for understanding how individuals and organizations adopt and implement new innovations. The Levels of Use component, developed

since the mid-1970s by Hall (1975) and associates, examines the extent to which practitioners effectively utilize an innovation, ranging from non-use to proficient and advanced application. By employing this framework, the study aimed to gain insights into the extent of teachers' engagement with CBA and identify areas requiring targeted interventions to enhance implementation. According to Hall and Hord (2020), the adoption journey unfolds across eight levels, as outlined in Table 1.

Table 1
The eight Levels of Use

Levels of Use (LoU)	Description
1. Non use	The teacher is not using CBA and may not be aware of it.
2. Orientation	The teacher is learning about CBA and preparing to use it but has not yet implemented it
3. Preparation	The teacher is planning and organizing to implement CBA but has not started using it
4. Mechanical Use	The teacher is using CBA in a basic, procedural manner with limited integration into teaching
5. Routine Use	The teacher is consistently using CBA as intended, with regular application in teaching practices
6. Refinement	The teacher is refining and adapting CBA to better fit their teaching context and improve effectiveness
7. Integration	The teacher has fully integrated CBA into their teaching practices, actively collaborating with others and seeking ways to enhance its impact
8. Renewal	The teacher is reflecting on and revising their use of CBA to further innovate and improve practice

To complement the CBAM and provide additional theoretical grounding for the first objective (secondary school teachers' conceptions regarding CBA), the study used the Constructivist Learning Theory (Vygotsky & Cole, 2018). Constructivist Learning Theory highlights the role of teachers as facilitators of learning rather than mere transmitters of knowledge. Exploring teachers' conceptions through this lens can reveal their views on the shift from traditional assessments to competency-based approaches. The theory underscores how prior knowledge, beliefs, and experiences shape individuals' approaches to teaching and assessment. This perspective is critical in understanding how teachers conceptualize and adapt to CBA. Therefore, while CBAM's Levels of Use component helps to assess the practical adoption and implementation of CBA, Constructivist Learning Theory addresses the foundational beliefs and conceptions that precede or accompany those behaviors. This combination enriches the study's theoretical grounding and ensures a holistic examination of both conceptual and practical dimensions of teachers' engagement with CBA

4. Methodology

4.1 Research approach and design

The descriptive research employed a qualitative approach, which was deemed suitable for unfolding teachers' conceptions of CBA due to its ability to uncover subjective experiences and contextual influences. According to Merriam and Tisdell (2015), basic qualitative research aims to reveal participants' experiences, the meanings they attribute to those experiences, and the processes involved. This approach allows for a deeper understanding of how teachers perceive and engage with CBA, considering the nuances of their individual contexts and backgrounds. The case study design (Cohen et al., 2018) facilitated an in-depth examination of teachers' conceptions and the level of CBA implementation, enabling a thorough understanding of the challenges and opportunities in adopting CBA practices within the specific educational context of Morogoro Municipality.

4.2 Study area and participants

We recognized that teacher's level of use in new innovations vary based on their subjective experiences and the work contexts. Therefore, the study examined teachers' conception and implementation in their varied contexts. The study was conducted in Morogoro Municipality, in Morogoro region located in the eastern part of

Tanzania, chosen for its diverse educational institutions, including government-owned secondary schools. To avoid biases related to working conditions, only government secondary school teachers were included, ensuring findings reflect the centrally managed curriculum. A combination of purposive and simple random sampling techniques was employed. Simple random sampling was used to select eight (8) schools from the municipality's 32 government secondary schools, from which 16 participants (two per school) were purposefully chosen.

To be selected, a participants needed to have least two years of teaching experience to ensure familiarity with foundational teaching practices. Priority was given to teachers of Biology and Geography, aligning with the researcher's expertise to facilitate objective data interpretation. Participants varied in qualifications, including diplomas, and first and master degrees. The sample size was determined by data saturation, where sufficient information was collected to address all themes without redundancy (Fusch & Ness, 2015). The LoU framework guided interviews, ensuring an in-depth examination of teachers' familiarity with and engagement in CBA implementation.

4.3 Data collection and analysis

The data collection process was guided by the standard Levels of Use (LoU) interview protocol, which was adapted for this study. To ensure the validity and relevance of the questions, consultations were held with research supervisors as recommended by Cohen et al. (2028). This process helped refine the questions and ensure that they accurately captured the teachers' conceptions and experiences with CBA. The final interview guide included open-ended questions such as, "How do you understand the concept of CBA?" and "What challenges are facing when implementing CBA?" in addition, probing questions, such as "Can you elaborate on that?"; "Could you provide an example?" were used to gather more detailed responses. Face-to-face interviews, which lasted for about 45 minutes, were then conducted during a field visit in March 2024 with selected teachers to examine their conceptualization and use of CBA. The interviews were held at participants' preferred locations within their school compounds and conducted in both English and Kiswahili, based on the participants' preferences. For interviews conducted in Kiswahili, translations were carried out during transcription, involving a back-and-forth process to ensure accuracy, as recommended by Cohen et al. (2018). Supervisors reviewed some of the translated transcripts and collaborated with the main researcher to address any translation issues, particularly with word choice, ensuring that the translation accurately conveyed the interviewee's intended meaning.

Data analysis followed the systematic approach as advised by Squire (2023) and was performed manually. At first, interview transcripts were transcribed verbatim, and initial codes were identified by thoroughly reading and re-reading the data. Recurring patterns and ideas were manually highlighted and grouped and coded. These codes were then categorized into broader themes aligned with the study's research questions. The LoU framework was employed to categorize the codes into the corresponding stages, aligning with the eight Stages of the LoU (Hall & Hord, 2020). To ensure the validity and reliability of research instrument and data, several strategies were employed. Peer debriefing sessions with research participants, providing clear instructions to research participants, and scoring of data. More standardization of interview environment to ensure uniform conditions for administration and scoring was also made. More techniques were also employed including review and validate the themes, by research supervisors.

4.4 Ethics consideration

To protect the rights, welfare, and dignity of the participants, the researcher acquired consent from the appropriate institutional entities. Before beginning data collecting in the field, the study obtained approval from a number of organizations, including Sokoine University of Agriculture, the President's Office Regional Administration and Local Government, and Morogoro Municipal Authority. Teachers were informed regarding the purpose and methods of the study prior to their involvement, thereby guaranteeing their informed consent. Confidentiality was safeguarded, with participants guaranteed not to have their identities or affiliations revealed

in any reports (Cohen et al., 2018) To protect their anonymity, each participant was assigned an RP pseudonym (with the RP standing for Research Participant) while schools were named A through to H. Participants' autonomy was further emphasized by being made aware of their freedom to leave the study at any moment and ensuring their comfort with participation.

5. Findings and discussions

5.1 Teachers' Conceptions of CBA

Essentially the successful implementation of CBA in secondary schools depend upon the teachers' understanding of the whole concept and how it should be used. During the study, participants were asked questions about "How do you understand the concept of CBA?" and "What challenges are facing when implementing CBA?". The answers to these questions resulted to emergence of four themes, reflecting their varied understanding of CBA. These four emerged themes are described next.

5.1.1. CBA as holistic construct

Four of the sixteen research participants (RP) shared a holistic understanding of CBA. Their responses highlighted a comprehensive view of CBA as an educational assessment approach involving the evaluation of students' input, processes, and outputs. This perspective was further illustrated by the frequent use of terms such as "thorough evaluation" "process and product" and "in-depth assessment" during the interviews. For example, research participant 1 (RP1) from school C repeatedly referred to the need to assess "*students' efforts alongside their final performance,*" while RP2 from school G highlighted the phrase "*process-product assessment.*" Such views underscore a consistent belief among these participants that CBA integrates both learning processes and outcomes into the evaluation framework. For example, RP2 from School G, opined extensively that,

"Competence-based assessment is an approach that fully evaluates students' ability to apply knowledge and skills in real-life situations. It focuses on assessing the entire learning process, including students' input, engagement, and performance. It measures completely how well students independently demonstrate understanding and practical application, assessing not only what students know but also how they use that knowledge to solve problems or perform tasks effectively". RP2 from School G

The same view was observed by RP2 from school H who stated,

"Competence-based assessment is not only about grading students based on their answers but looking at how they arrived at those answers, the skills they applied. It involves assessing students' ability to apply knowledge and skills in practical contexts, rather than just recalling content". RP2 from school H

RP2 from school H further emphasized that, "*CBA is about going beyond memorized answers*", adding that it focuses on practical demonstrations of how students use what they learned. Such perspectives reflect an awareness that CBA prioritizes the demonstration of skills, achievements, and intelligence through practical performance rather than solely testing knowledge through rote memorization.

This holistic view of CBA mirrored the principles of constructive learning, a concept highlighted by theorists such as Schuwirth and Ash (2013). Scholars who view CBA as a holistic approach emphasize evaluating students' overall learning process, including their input, engagement, and outcomes. This perspective

assesses not only students' final performance but also how they demonstrate competencies throughout their learning journey.

5.1.2. CBA as performance evaluation

Another important theme that emerged from the analysis of the transcribed teacher interviews is the understanding of CBA as performance-based. This theme highlights teachers' emphasis on evaluating students' abilities through practical, real-world applications rather than theoretical knowledge. Six (6) of the 16 participant teachers—Research participant 1 (RP1) from School E, RP1 from School G, RP1 from School D, RP2 from School C, and RP1 and RP2 from School F—described CBA as primarily focusing on measuring what students can do, emphasizing the practical demonstration of skills as the key output of learning. Participants consistently underscored the importance of measuring students' competence based on their ability to apply learned knowledge and skills in authentic, task-oriented scenarios.

RP1 from school E, articulated this conception by stating, *“Competence-based assessment is all about performance measurement”*. RP1 from school D and RP2 from school C echoed this conception, where RP1 from school D emphasized, *“It's task-oriented, focusing on how well students apply their knowledge and skills in real-world scenarios”*. Sharing the same perspective, RP2 from school C opined during the interview; questioning, *“How could you be sure that students are prepared for future roles if their performance is not assessed in real-life scenarios?”* highlighting that authentic assessments are crucial for confirming that students are genuinely capable of succeeding in their future career. Such views reflect the teachers' central idea that CBA is designed to assess students' practical abilities rather than their memorization of theoretical content. RP1 from School G resounded this understanding; stating,

“I see competence-based assessment as a practical evaluation method. It's not just about theoretical knowledge but about how students can demonstrate their abilities through authentic, application-based evaluations. The activities we ask them to perform must reflect real-world tasks to accurately measure their competence.” RP1 from School G

This statement reinforces the notion that CBA is grounded in application-based evaluation, where students are expected to show how they would handle situations in real life, whether in professional or everyday contexts. The teacher's focus on authentic evaluation further emphasizes the importance of using real-world tasks that mirror the challenges students will face, ensuring that assessments are both relevant and meaningful. RP1 from school F, RP1 from School E and RP1 and RP2 from school F shared a similar view. RP1 from school F, for example, illustrated it by stating,

“For me, competence-based assessment is performance-based. It's focused on the actual tasks and activities students complete. We move away from traditional exams and instead look at how students can perform and apply what they've learned in authentic situations, which is a much more reliable indicator of competence.” RP1 from school F.

This statement reflects a clear departure from traditional, exam-centered assessments, underscoring the practical application of knowledge as the core measure of competence. The teacher's focus on task-driven evaluation highlights the preference for assessing students' abilities to complete relevant activities that simulate real-life scenarios, thus offering a more reliable measure of their actual competencies.

Generally, terms such as “authentic-based measurements”, “task-oriented evaluation”, “practical evaluation”, “application-based assessment”, and “activity-focused assessment” were frequently used by teachers in describing their understanding of CBA, emphasizing a shared belief among participants that assessments should go beyond theoretical recall. Teachers pointed to the necessity of aligning assessments with real-world tasks that

allow students to showcase their abilities in authentic contexts.

Their conception holds significant implications for the constructivist learning theory that guided the study. Constructivism posits that knowledge is best acquired through active engagement and the application of learning in real-world contexts (Vygotsky & Cole, 2018). Teachers' emphasis on application and performance aligns well with the opinion by Wong (2020) and Akinrinola et al. (2020) in that the constructivist learning is a dynamic process of constructing meaning through hands-on experience and problem-solving.

5.1.3. CBA as a criterion-referenced Assessment

Another significant theme that emerged from the transcribed teacher interviews is the conception of competence-based assessment as criterion-referenced, which focuses on evaluating learners' mastery of specific skills or tasks against predefined criteria or standards. Unlike norm-referenced assessments, where students' performances are compared to one another, criterion-referenced CBA assesses whether students meet specific competence standards, regardless of how their peers perform. Teachers described CBA in terms of evaluating students against clearly defined performance benchmarks, with an emphasis on skill-based, proficiency-oriented measurements. Terms such as "learning outcomes," "competence-framework," "rubrics," "competence-standards," and "performance benchmarks" emerged repeatedly in participants' descriptions about CBA, underlining the structured and measurable nature of this assessment approach. RP1 from School B, RP2 from School E, RP2 from school D and RP1 from school H shared this common understanding of CBA, emphasizing the importance of individualized assessment over traditional ranking. RP1 from school B, for example, articulated,

"Competence-based assessment, in my perspective, relies heavily on clear performance benchmarks. By aligning our evaluations with specific competencies and learning outcomes, we create a framework that helps measure student proficiency and ensures that they have mastered the required skills." RP1 from school B.

This statement underscores the importance of clear benchmarks in CBA, where students are assessed based on the mastery of specific skills and competencies, not in comparison to their peers but against predefined expectations. The use of learning outcomes as a measure of proficiency ensures that assessments are directly linked to the competencies students are expected to acquire.

Rubrics provide an objective framework for assessing students' competencies, ensuring consistency in evaluating whether students have achieved the necessary proficiency levels as defined by the competence standards (Olson & Krysiak, 2021). The statements of teachers in this category reflect this understanding. RP2 from school B and RP1 from school C unanimously echoed this conception, highlighting the role of rubrics in creating fair and measurable evaluation criteria. For example, RP2 from school D stated,

"I think of competence-based assessment as a framework that uses rubrics to measure students' mastery of specific competencies. These criteria help in determining whether students have achieved the desired proficiency and are meeting the established competence standards. It's a clear and objective way to evaluate their performance." RP2 from school D.

RP1 from School H and RP2 from school E shared the same view, emphasizing that CBA of students focuses more on learning outcomes and competence standards. She stated, *"It is about assessing whether they have met the expected benchmarks of mastery"*, pointing out a need to use skills-based and proficiency-based measurements to evaluate their true capabilities. During the interviews, RP2 from school E questioned, *"Why*

else would we develop specific objectives if not to provide clear reference points for assessment?" which appeared to reinforce the view of CBA as an assessment that is centered on specific competencies rather than on relative student performance. It emphasizes the alignment of assessment with learning outcomes and competence standards, where the goal is to measure a student's ability to demonstrate mastery in particular skills and competencies.

In addition to these specific examples, participants frequently referenced key terms such as "competence-framework," "performance benchmarks," and "learning outcomes" to emphasize the structured nature of CBA, where assessment is designed to measure student achievement in relation to predefined standards rather than in comparison to other students. Further, phrases such as "competence-standards," "skill-based assessment," and "proficiency-based measurement" were also mentioned repeatedly, which underscored the focus on evaluating students based on their ability to demonstrate specific skills and competencies.

Overall, these teachers emphasized that CBA is not about comparing students to each other, but about assessing whether they have achieved the desired competencies and proficiency levels. This understanding reflects the reviewed literature. The criterion-referenced nature of CBA prioritizes the assessment of how well students can meet specific pre-defined learning outcomes as prescribed in official standard guide and apply their knowledge in real-world situations (Olson & Krysiak, 2021). The participants who align with this criterion-referenced understanding of CBA seem to believe that the focus should be on meeting established standards rather than ranking students (Gallardo, 2020).

By assessing students against specific, predefined competencies, CBA encourages students to focus on developing and demonstrating mastery of essential skills, rather than simply competing against their peers. This process aligns with the constructivist view that assessment should be a tool for supporting individual learners' development, helping them progress towards achieving deeper levels of understanding and competence (Vygotsky & Cole, 2018). Additionally, the use of rubrics and clear performance benchmarks is consistent with the constructivist emphasis on providing students with clear expectations and feedback, which helps guide their learning process.

5.1.4. CBA as a mere detailed testing

One notable theme identified among a few teachers in this study is that of viewing CBA as merely a more elaborate version of traditional testing. This conception, observed in responses from RP1 (School A) and RP2 (School B), reflects a limited understanding of the fundamental philosophy underpinning CBA. These teachers appeared to view CBA as a process centered on increasing the frequency of assessments, such as project-based assignments, quizzes, and written examinations, rather than recognizing the significant paradigm shift it demands in evaluating student competencies.

For instance, RP 2 from school B remarked,

"The idea of CBA feels like it's just about adding more assignments and conducting more frequent formative assessments, like weekly quizzes and monthly tests that count towards the final grade. I think CBA is all about checking competencies more frequently to track progress". RP 2 from school B.

This perspective reveals a belief that frequent testing and the inclusion of in-depth questions in examinations equates to assessing competencies. If they conducted weekly quizzes and include a few open-ended questions in exams, then they managed assessing competencies. While ongoing formative assessments are indeed an integral part of CBA (Wong, 2020), this understanding oversimplifies its objectives. Teachers adhering to this view likely failed to recognize that CBA emphasizes not just the frequency of assessment but also the evaluation of students' ability to apply knowledge, skills, and attitudes in real-world contexts.

A similar perspective emerged from RP1 from School A, who described CBA as fundamentally altering exam formats.

“In my experience, CBA means changing the style of examinations. It’s about asking open-ended questions or creating scenarios that require detailed responses. For example, we’re encouraged to design questions where students must explain solutions or describe how they would apply concepts to real-world situations. It’s more about how they respond, and that helps us assess their competencies.” RP1 from School A.

While this teacher demonstrated some understanding of CBA principles, his focus remained narrowly centered on examinations rather than embracing the holistic, ongoing assessment of students' skills, attitudes, and practical application of knowledge. This narrow focus underscores a misconception that CBA is primarily about modifying examination formats to include open-ended or scenario-based questions that merely demands written responses, without fully appreciating the broader goals of assessing students' ability to solve authentic, real-world problems.

Generally, the recurrence of perspectives which prioritized assessment frequency and detailed written responses emerged also in the descriptions of other interviewees. Such views highlight the fact that some teachers continue to view CBA through the traditional lens of frequent tests, projects, and formal examinations, rather than as a transformative process for evaluating competencies in dynamic and practical ways.

5.2 Levels of using CBA

The analysis of teachers' responses revealed a significant disparity between the intended adoption of CBA and its practical implementation in schools. While some teachers reported combining multiple methods, their strategies lacked the depth required for hands-on assessment, with approaches like project-based learning or real-world simulations rarely appearing in their descriptions. Overall, teachers' practices predominantly aligned with the first three stages of the CBAM's LoU framework: Non-Use, Orientation, and Preparation.

5.2.1. Entrenched Traditional assessment Practices

Analysis of teachers' responses indicates that six out of the 16 participants (RP2 from School B, RP1 and RP2 from school A, RP1 and RP2 from School D, and RP1 and RP2 from School D) were not using CBA in routine classroom activities. Their statements revealed that they predominantly designed assessments around paper-and-pen-based formats that prioritized rote memorization. These assessments focused mainly on testing factual recall, thereby neglecting essential elements of CBA such as problem-solving and hands-on activities. Terms like “written tests,” “recall,” and “remembering” repeatedly surfaced in their descriptions of their CBA implementation practice.

For instance, RP1, a biology teacher from School A, shared:

“I have heard about competence-based assessment, but to be honest, the process feels overwhelming. Our focus remains on preparing students for national exams rather than developing other skills. I’m not sure how I can fit all that into our current schedule.” RP1, a biology teacher from School A.

This teacher's view highlights the challenge of balancing national exam preparation with the demands of implementing CBA. Another participant, RP1 and RP2 from School D echoed this view. RP2 from school D, for example, emphasized:

“The methods we have used for years work for us, and we have become accustomed to them. Changing to something entirely new, especially something we do not fully understand, feels risky and uncertain. I am skeptical about the shift and prefer sticking to what I know works for the students.” RP2 from school D.

The repetition of words such as "comfortable," "unsure", "risky," and "uncertain" signifies resistance to change. These teachers are entrenched in traditional assessment methods and are hesitant to adopt more innovative approaches. Presence of such teachers during transitions such as this is not surprising. Previous studies, such as those by Kigwilu and Mokoro (2022) and Ismail et al. (2024) report similar findings, suggesting that teachers with limited experience in innovative assessment practices often struggle with the implementation. These findings suggest that, according to the LoU framework, these teachers are at Stage 1, the non-user stage, where they neither understand nor engage with CBA (Hall & Hord, 2020). Interestingly, our analysis revealed that these are the participant teachers who had low experience in teaching (1-5 years of teaching).

5.2.2. Exploratory stage of CBA implementation

Nine (9) of the teachers surveyed showed initial attempts to engage with CBA, though their efforts were inconsistent and limited. These teachers recognized the potential of CBA but admitted that their attempts were minimal and often disjointed. They recognized CBA's potential to engage students, yet their lack of confidence and understanding in fully utilizing it RP2 from School H remarked,

“Students seem more engaged when I try CBA, but I feel like I’m experimenting without a clear direction. I want to improve but need more training and a clearer framework for assessment.” RP2 from School H.

Key terms like “trial,” “attempt,” and “unsure” surfaced frequently in their responses about the application of CBA, further suggesting a beginner characteristic. One teacher, RP1 from School H, admitted, *“I only use it when preparing my students for practical National examinations”*. This quote reflects a limited, occasional use of CBA on areas they expected to emerge in National Examinations. It is an indication that CBA was not integrated in their everyday instructional practice.

In addition to conventional assessment methods, the only practices that these teachers occasionally attempted were oral presentations, simple laboratory activities, and concept map creation. For instance, RP1 from School B shared,

“I use oral presentations occasionally, especially when we need to prepare for practical exams. It’s a simple way to assess students’ understanding, but it feels like a basic step toward competence-based assessment.” RP1 from School B.

Although these teachers were trying to implement CBA, the way they described their practices suggested a beginner’s approach, with limited engagement in the more complex aspects of CBA, such as fostering critical thinking or creativity. RP2 from School C exemplified this, stating,

“I tried using concept maps, but I ended up grading them based on completeness, not on the critical thinking behind them. I’m not yet sure how to assess creativity or deeper cognitive skills.”

Another example is RP2 from School F, who gave an account of a group project on environmental

conservation, stated.

"I assigned a group project on environmental conservation. While grading, I focused more on the volume of content. Some students are very lazy here." RP2 from School F.

Such descriptions reflect a narrow application of CBA, focusing on elements of assessment that are less aligned with the collaborative and analytical competencies emphasized by the framework. Findings such as these are also reported in previous research in Tanzania Makunja (2026) and in other developing countries (Akinrinola, 2020). Such practices suggest that these teachers were experimenting with CBA, but without fully engaging with its core principles, indicating that they were still in the Preparation Stage of LoU, where teachers begin to apply new methods but lack consistent and effective implementation (Hall et al., 1975; Hall & Hord, 2020). They were still learning about new practices but have not yet integrated them into a systematic approach.

5.2.3. Preparation Stage of CBA implementation

Two research participants (RP1 from school C, RP2 from school G, and RP1 from school F) demonstrated notable efforts to align their assessments with CBA principles by incorporating practical and problem-solving tasks into their teaching. Phrases like "role play," "group projects," "practical tasks," and "observation" were frequently used, reflecting their genuine attempts at implementing CBA strategies. For instance, RP1 from School F stated,

"In my class, students are tasked with creating visual diagrams that represent the relationships between different concepts. This allows them to demonstrate both their understanding and their organizational skills, as they connect various elements of the lesson to real-life scenarios." RP1 from School F.

Additionally, RP2 from school G observed that when students were involved in practical tasks, they showed significant improvement in problem-solving and participation. He explained,

"I have noticed that when students are given practical, hands-on tasks, such as designing simple experiments or group projects, they become more engaged and develop a deeper understanding of the content. These experiences allow them to practice critical thinking and collaborate with their peers in ways that traditional methods simply can't." RP2 from school G.

Despite these efforts, however, evidence suggests that the teachers' attempts at CBA were often isolated and poorly integrated. Commonly used phrases like "difficulty with criteria" and "unclear assessment rubrics" point to the ongoing challenges they faced. Many teachers indicated that they lacked clear frameworks for evaluating key competencies. RP1 from school C shared a concerning example:

"During a lab exercise where students measured soil pH, I ended up grading them only on the correctness of their measurements. I wanted to assess their hypotheses and teamwork, but without clear rubrics or guidelines, I didn't know how to do so fairly or consistently." RP1 from school C.

This teacher remarked further that although designing tasks such as debates and group projects sounds straightforward, it is hard to judge the students' performance objectively without a solid framework. He emphasized, *"I often feel unsure about what specific skills to focus on and how to assess them comprehensively"*.

Such comments are consistent with the LoU framework's categorization of these teachers at the Preparation stage. They exhibit an awareness of CBA's value and are actively trying to adapt their practices, but their implementation is still rudimentary. These findings reflect those reported by Kigwilu and Mokoro (2022) and Juma and Patel (2024) who found the CBA limitation brought about by the lack of structured guidelines, clear assessment rubrics, and consistent frameworks for evaluating diverse competencies.

This observation highlights that while some teachers have moved beyond simple orientation and are making strides toward preparation, the complexity of CBA demands further development of both their skills and resources. The clear presence of "difficulty with criteria" as a recurring concern signifies that teachers are in the early stages of implementing CBA, where they are exploring and experimenting but have not yet established comprehensive and consistent systems for assessment. This analysis aligns well with the LoU framework (Hall & Hord, 2020), which characterizes the Preparation stage as one where individuals are beginning to prepare for more effective use but are still refining their practices and overcoming initial barriers to implementation.

6. Conclusion

This study has explored the conceptions and implementation practices of CBA among secondary school teachers in Tanzania. The findings reveal that teachers' understanding of CBA varies, with some embracing a holistic, performance-based, or criterion-referenced approach, while others continue to rely on traditional assessment methods. Those with a more comprehensive conception of CBA emphasized the importance of evaluating both the learning process and the outcomes, aligning with constructivist principles that focus on skill development, practical application, and student empowerment.

Despite the theoretical support for CBA, the practical implementation in classrooms shows significant challenges. Many teachers are at the early stages of adopting CBA, often remaining at the non-use or preparation stages, as outlined in the CBAM's LoU framework. Some have made exploratory attempts to integrate CBA principles, but their practices remain limited and inconsistent, primarily due to a lack of clear guidelines, assessment rubrics, and professional development opportunities. Additionally, the pressure of national exams and entrenched traditional methods contribute to resistance and slow adoption.

6.1 Implications and recommendations

This study underscores the critical need for targeted interventions to support the effective implementation of Competence-Based Assessment (CBA) in Tanzanian secondary schools. Variability in teachers' conceptions of CBA and challenges in applying it highlight the importance of robust professional development programs focusing on both theoretical and practical aspects. Clear guidelines, comprehensive training, and standardized rubrics are essential to aid teachers' transition from traditional assessment to CBA. Teachers should also foster critical thinking, problem-solving, and self-directed learning among students to prepare them for CBA demands while reducing resistance through clear communication about its benefits. Systemic challenges such as large class sizes, limited resources, and insufficient teacher support must be addressed. Policymakers should prioritize creating a supportive infrastructure with adequate resources and incentives to enhance adoption. Without these measures, the potential of CBA to improve educational quality and student outcomes may remain unrealized.

6.2 Limitations

This qualitative and descriptive study, conducted in government secondary schools in Morogoro Municipality, Tanzania, may not be generalizable to other regions, private institutions, or rural areas where different contextual factors could influence the implementation of CBA. The findings are also limited by the subjective experiences and perspectives of only a few Biology and Geography teachers, which likely introduced bias. To deepen understanding, future studies should explore CBA in diverse educational settings and include teachers of other subjects to capture a wider range of challenges and opportunities. Expanding the sample size and diversifying teacher profiles would enhance the comprehensiveness of CBA adoption studies. Additionally,

future research could investigate how teacher preparedness, pedagogical training, and contextual factors influence CBA implementation across various regions. Longitudinal studies might also provide insights into how CBA evolves over time, assessing its impact on student learning outcomes and the quality of education.

7. References

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