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An Analysis of Competence-Based Assessment in Tanzanian Primary and Secondary Schools: Current Situation, Challenges, and Future Directions

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Abstract

An empirical review was carried out to explore competency-based assessment in Tanzania's primary and secondary schools. The study was guided by constructivism and social theory. It was a desk review whereby several empirical studies relating to competency-based assessment were reviewed to assess types, effectiveness, challenges, and strategies adopted to design improved competency-based assessment in primary and secondary schools in Tanzania. The study revealed that formative and summative assessments are the main assessments used in primary and secondary schools. Although diagnostic, evaluative, and placement assessments were important, they were rarely used. The study also found that the competency-based assessment is effective because it allows the assessor to discover the learner's talents, design tailor-made lessons to fit them and lead the individual learner to meet predetermined goals. The challenges for competency-based were achieving excellence, large class size, infrastructure for learning, assessment standards, and broad recognition and understanding. The study explored the strategies for competency-based assessment criteria and determined that they should be clear, specific, measurable, and based on the expected performance levels for the job role and the organization. The study concludes that competency-based assessment is reasonable, provided that the implementers know the goals and get appropriate in-service training to fit the goals. The study recommends that assessors should apply all assessment types to identify talents and position the learners to where they fit, and also, several learners per class should adhere to enable a conducive learning environment.

Keywords: Competency-based, Assessment, Competency, Seat time, Primary and secondary schools

1. Introduction

Educators are constantly struggling to ensure that what is taught to students prepares them for the real world that lies ahead. However, knowing for sure that students understand the real world ahead is questionable. In this scenario, competencies have become an increasing focus of the education system at all levels globally (Albanese *et al.*, 2008). Despite adopting competency-based assessment, there is confusion about what constitutes competency. Albanese *et al.* argued that it is unclear whether it is simply another name for an objective, goal, or outcome or is a distinct and separate entity.

Competence-based assessment is the measure that determines the learner's ability to apply the skills learned to the real world. It is also the measure of educators to ensure that they are on track toward meeting their goals, and the competency-based assessment emphasizes applying the skills acquired (Van Der Heijde & Van Der Heijden, 2006). Skills take time to develop, nurture, and finesse, unlike content readily accessible at the touch of a finger (Scripp *et al.*, 2013). Competence-based assessment is self-evaluation where students determine their strengths and areas to develop (Bergmann *et al.*, 2015).

In higher education, competence-based assessment is efficiently used. Students are taught lessons and apply the skills to their real world. This is mainly evidenced during practical training, where students are allowed to be attached to the organizations of their choice and sections in which they prefer to practice their skills. Field attachment is learning by doing where theories learned are put into practice (Cope & Watts, 2000). Learning by doing allows students to develop their interests and competencies and allows assessment to be easily done. This competency-based assessment is easily applied to medical, engineering, accounting, and other fields (Albanese *et al.*, 2008).

Competence-based assessment provides myriad benefits because it involves and engages the learner. Students or learners are motivated by authentic tasks and become involved in reflecting on the learning, leading to their goal-setting when competency-based assessment is embedded into classroom practices (Paris & Paris, 2001). When students understand the drive of the evaluation at hand, like a performance task requiring students to apply skills to steer a multi-step real-world problem, student commitment increases and, in turn, provides a truer picture of what students can do because they desire to demonstrate their abilities.

Competence-based assessment is easily applied to higher learning and lower levels in developed countries. Countries that use competency-based assessment include Canada, China, Finland, New Zealand, Singapore, Sweden, and the United Kingdom (Bristow & Patrick, 2014). The system prepares students with inquiry minds and creative and employability skills to perform different responsibilities (Soule & Warrick, 2015). Competence-based assessments represent knowledge, skills, and attitudes necessary for personal fulfilment and development, active citizenship, social inclusion, and employment (Bristow & Patrick, 2014). The system is good because it helps educators discover what students learn in classrooms and how they can do best.

In Tanzania, a competence-based curriculum was adopted in 2005 for higher learning institutions, as well as secondary and primary schools. As implementers of the curriculum, teachers positively perceived the shift from content-based to competence-based (Nkya, 2021). However, Nkya content that inadequate resources and preparation for the shift to competency-based was the bottleneck towards successful implementation. Low teacher's capacity to prepare teaching and learning activities as required in the competence-based curriculum, large class sizes, and inadequate resources such as books and laboratories were mentioned as hindrances to adequately implementing the curriculum.

As cited by Nkya from Hoy and Miskel (1987), it is believed that to learn, students should be given basic skills and problems to solve. If students are not given or exposed to these activities inside and outside the classroom, it is difficult for them to develop competencies, as the constructivists advocate (Waite-Stupiansky, 2022). The National Curriculum Framework identifies types of competence-based assessments for primary and secondary schools; however, studies by Nkya (2021) and Kangalawe (2019) found that competence-based assessments were ineffective in developing learners' talents and also had challenges for successful implementation to prepare learners for real-life challenges. Therefore, this study intends to identify types of competence-based assessment, their effectiveness, and the challenges and strategies designed to improve competence-based assessment in primary and secondary schools in Tanzania.

Theoretical framework

Constructivism theory states that learners construct knowledge rather than passively taking in information (Liu, 2010). As people experience the world and reflect upon those experiences, they build their representations and incorporate

new information into their pre-existing knowledge. The theory emphasizes that learners fit their knowledge with what they are taught in the classrooms. It is noted that the learners construct knowledge based on their experience, and instructors act as mentors (Chuang, 2021). The theory is synthesized by the Mwalimu Nyerere doctrine on the education of self-reliance that equips the learners with knowledge, skills, and attitudes to tackling societal problems, prepares youth to work for the society, enables learners to know, appreciate, and preserve national traditions, individual freedom, responsibility, tolerance and respect (Tanzania Ministry of Education, 1982).

Principally, there are three categories of assessments: prior learning assessments, summative assessments, and formative assessments. However, today, the doctrine defines five assessment categories: diagnostic (prior learning assessment), formative, summative, evaluative, and placement. These assessment methods enable educators to understand the required skills the learners need as documented in social exchange theory, where instructors act as role models to the learners (Chuang, 2021) and aim to ensure that learners acquire skills from the role models and apply in their daily life (Sanga, 2016). Sanga explains that competency-based education builds independence for learners and enhances education for self-reliance, which should be relevant to society, must serve society, must be problem-solving, and must be work-oriented. As cited by Sanga (2016) and Smith and Ragan (2005), Social constructivism theory focuses on an individual's learning through vicarious experiences (e.g., observing a role model, hearing from others) in a social context.

2. Material and Methods

The study used a systematic literature review of the competence-based assessment curriculum published articles from 2010 to 2023. The study determined the competence-based assessment used in primary and secondary schools in Tanzania, identified challenges encountered in implementing competency-based assessment in primary and secondary schools, and the effectiveness of competence-based assessment as well as the strategies adopted to improve competency-based assessment in primary and secondary schools in Tanzania. The study used Google Scholar as a search engine and competence-based assessment as a key search word. In the first instance, 17,100 articles were obtained; these were checked for duplication and relevance to the study, and only 100 articles were retained. These 100 articles were checked by reading their abstracts and conclusions to check their relevance to the study, and

ultimately, only 30 articles were found relevant to the study and, therefore, were read in full.

The reviewed pieces of literature were filtered based on the data saturation principle and funnel-based methods of evaluating the literature review (Armstrong *et al.*, 2011). The articles retained after filtration were used to enrich the study based on the saturation principle of qualitative research analysis methods, and thematic content analysis presentation of results was applied. The saturation principle content that data collection and articles review increases as more articles or interviews are conducted with many respondents until the information becomes repetitive and no longer increases in quality (Reich, 1994); therefore, it becomes illogical to add more literature review or respondents (Guest *et al.*, 2020; Pal *et al.*, 1998). Using the predetermined criteria, relevant articles were reviewed based on article objectives. Constructivism and social exchange theories anchored and guided the study in determining types of competence-based assessment in Tanzanian primary and secondary schools that prepare learners for real-life challenges, the effectiveness of competence-based assessments in measuring practical skills and knowledge application in Tanzania primary and secondary schools, identify strategies for competence-based assessments aimed to improve holistic education in primary and secondary schools in Tanzania and also examine challenges of competence-based assessment in Tanzanian primary and secondary schools. The diagram below shows how the articles were filtered based on the relevance of the study.

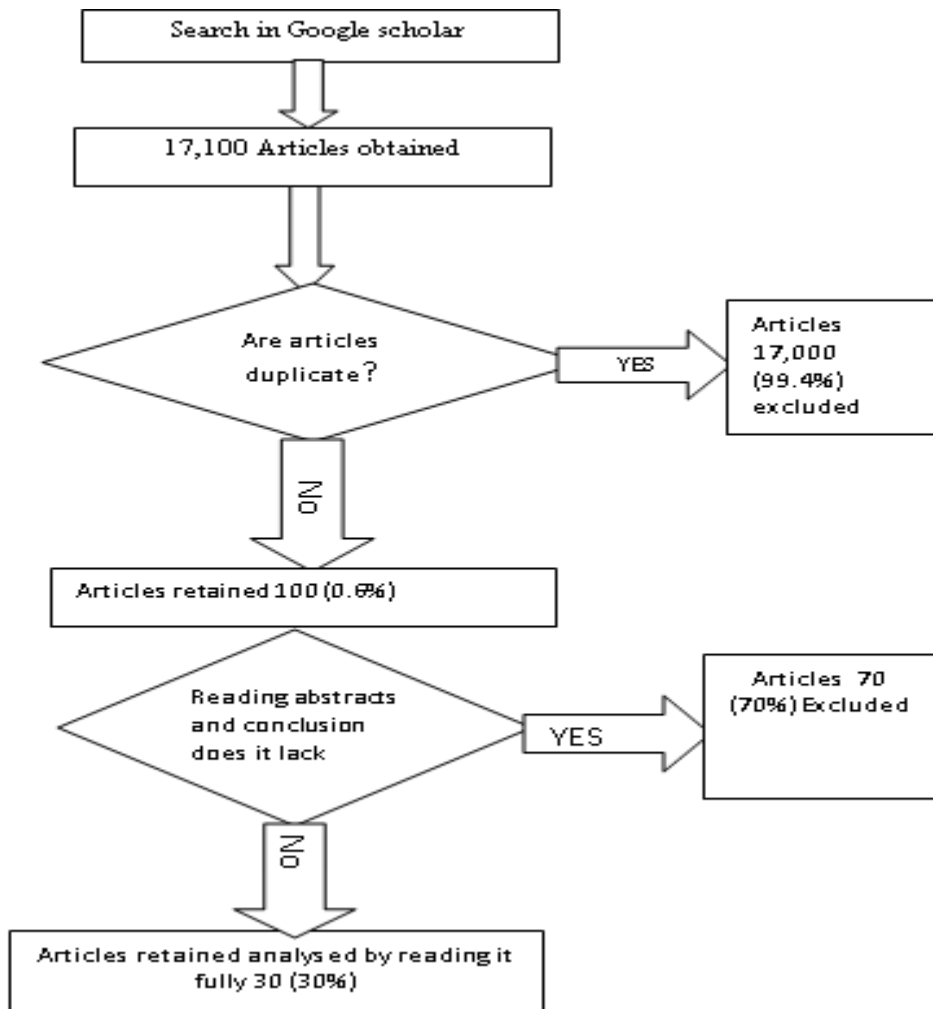


Figure 1: Literature Review Filtration Methods

Source: Kuckert & Blocker (2021) and Clark *et al.* (2021)

3. Findings and Discussion

Session The study reviewed empirical literature on types, effectiveness, challenges, and strategies to improve competency-based assessment. In doing this exercise, the study aimed to determine which types of competence-based assessment are in place in Tanzania primary and secondary schools and the effectiveness, challenges, and strategies employed to improve the competence-based assessment. Each empirical study objective was reviewed until a saturation point was reached to make up the study's conclusion.

3.1 Types of competence-based Assessment

The results indicated that competence-based education is the global innovation expected to stimulate learning that prepares students for the world of work and society (Wesselink *et al.*, 2017). Besides being a global educational innovation, competence-based education requires concrete assessment that ensures its implementation. Losioki (2018) commented that evaluating learners' competence is paramount in competence-based teaching and learning because it allows the assessor to work with a learner to collect evidence of competence from the learning outcomes of the learning program. Furthermore, the education provided should be relevant to the community where the learners live to enable the learners to apply skills gained through learning (Sanga, 2016).

According to Wesselink *et al.* (2017), competency-based assessment is the way to measure competency for a vocational skill. In measuring competence, the learner must demonstrate an ability to work through specific units of competency using the benchmarks provided by industry-defined standards (Goldberg *et al.*, 2021). In practising a competence-based curriculum, teachers practice formative assessment by less than 50% (Komba & Mwandaji, 2015). Komba and Mwandaji further revealed that teachers who are the implementers of the competence-based curriculum were not aware of the aim of the competence-based curriculum, and most of them were not preparing a lesson plan and concluded that the implementation of the competence-based curriculum in secondary schools was ineffective.

Competency-based assessment design involves delivering information books and fulfilling workbooks, discussing the place and time for the assessment, and applying skill tests and questioning as assessment types (Puisi *et al.*, 2019). Puisi *et al.* also comment that Competency-Based Assessment implementation comprises making sure the information book and workbook have been delivered, conducting the assessment in the agreed place and time, assessing students' performance, giving feedback during and at the end of the assessment activity, reassessing student who is 'not-yet-competent,' recording and reporting the assessment result.

The study in Arusha region secondary schools on the effects of a competence-based curriculum on students' achievement indicated that the use of different teaching and learning methodologies, such as a learner-centred approach, discussions, exhibitions, and practical activities, were encouraged (Theobald & Omondi, 2022). The study recommended that CBC be effectively implemented

in all secondary schools so that students can develop the necessary skills for personal transformation.

Experts were conducted to seek the opinion on competency-based education curricula. The experts explained that Competency-based assessment focuses on the demonstration of competence when considering students' progress and measures it by formative assessments and that students' learning gaps are eliminated by supporting them at each stage (Açıkgöz & Babadoğan, 2021).

Competence-based assessment allows the assessor to work with a learner to collect evidence of competence from the learning outcomes of the learning program (Losioki, 2018). In this study, the author examined competence assessment and the principles, methods, and procedures for assessing competencies in a Competency-based teaching and learning context. The study concluded that understanding the principles, assessment methods, and appropriate assessment procedures is emphasized for quality teaching and learning adherence. Therefore, various assessment methods are recommended for validity and effective competence assessment.

In Temeke Municipality, a study was conducted to determine the assessment modes used in secondary and primary schools and teachers' competency skills to assess the competence-based curriculum. The study's respondents comprised Head teachers, teachers, students, district education officers, and directors of the national examination council. The study concluded that assessment skills in the Competence Curriculum are not satisfactory, and the mode of assessment used in schools was pen and paper (Kangalawe, 2019). The study recommended that the Tanzania Institute of Education should prepare a document on assessing practical skills and hold in-service courses to equip teachers with the skills they need to handle the competence-based curriculum.

Most of the studies reviewed determined formative and summative assessments to measure competency-based in primary and secondary schools. This kind of assessment is insufficient because pupils are assessed daily and at the end of a period relative to the learning curriculum. However, more methods of pupil assessment are required to ease the implementers' work on the curriculum and enable them to regulate their lesson plans in teaching and learning. Diagnostic assessment is important before formative and summative assessments to identify pupils' weaknesses and errors that are normally committed (Bejar, 1984). This assessment considers the pupil's current knowledge, skills, and ability to retain.

Furthermore, evaluative and placement assessments are important after formative and summative. Evaluative assessment respects individual differences and considers that people have different strengths (Bryce, 1997). Hence, an authentic assessment favours tasks replicating real-world situations, is an evaluative assessment that categorizes the individual's strengths and leads to a placement assessment that recognizes each individual with her ability. However, in primary and secondary schools in Tanzania, the popular assessments mentioned in the National Curriculum Framework (2019) are internal and external, summative and formative assessments. These are inadequate and do not enable facilitators to design good lesson plans for learners.

3.2 Effectiveness of Competence-based Assessment

Lassnigg (2017) and Lassnigg (2015) were reviewed to determine the effectiveness of the competence-based assessment. The review aimed to understand the usefulness of competence-based education in preparing pupils or learners for the real world of work. The reviewed documents came with different weaknesses and strengths in the curriculum implementation and made recommendations on what should be done to make it effective.

The competency-based education teaching and learning strategies must match the appropriate learning domain (Henri, Johnson & Nepal, 2017). The competencies are emphasized by doing but not by listening and conceptualizing knowledge. It is not like the seat time system that requires the completion of the content listed, but competency-based; the assessment is based on mastery of the learned content through application in daily life (McClarty & Gaertner, 2015).

An implementation of competency-based education leads to the discovery of talents and technical abilities among students. A competency-based, self-directed curriculum mainly determines the achievement of required knowledge, skills, and abilities. Furthermore, the system is characterized by flexibility, ease of customization, measurable outcomes, relevance, and increased motivation (Caskurlu & Ashby, 2018).

The review of empirical studies by Nkya (2021) indicated that teachers tasked to execute a competence-based curriculum had less capacity because they didn't attend the in-service training. Similarly, the teachers were unaware of the aim of competence-based assessment and were not preparing a lesson plan. Also, the lack of facilities, including books, made the curriculum ineffective. Therefore, the effectiveness of the competency-based curriculum depends on the

implementation strategies in place. That is to say, the availability of competent implementers and facilities makes the system effective.

3.3 Challenges of Competency-Based Assessment

Empirical studies reviewed mentioned several challenges of competency-based assessment. These studies were from different areas of the world. However, some were common all over the world, and even in Tanzania, they affected the implementation of it. These challenges are mentioned below by Muñoz and Araya (2017).

3.3.1 Achieving excellence

The competency-based curriculum requires education institutions to demonstrate uncompromising commitment in implementing it. The issues that should be considered are how the rigour and equality of the curriculum should remain equitable across the border, how the curriculum should realize the goal of achieving excellence, and how a competency-based approach breaks the path of mediocrity and moves beyond the fate of other general education trends (Ilahi-Amri, Cheniti-Belcadhi, & Braham, 2017).

3.3.2 Large class size

Another key challenge in implementing a competency-based curriculum is the large class size. A higher number of students in a classroom tends to affect student-instructor interactions and can also prevent peer exchanges during discussions in the classroom (Zainuddin & Perera, 2019). Since every student learns differently, the instructor's pace in a high-density class may work for some students but not for others. This greatly hinders the implementation of a competency-based curriculum and restricts educators from applying learner-centric interactive teaching methods. Limiting the class size can be beneficial for both students and educators, leading to improved learning performance.

3.3.3 Infrastructure for Learning

Since a competency-based curriculum involves a fundamental shift from passive to active learning, the infrastructure needed for this model is very different. To implement a competency-based curriculum, educational institutions require everything from modern classrooms, creative centres, smart boards, laboratories, and the latest technologies at all levels, as it can help students actively participate in the learning process (Saini & Goel, 2019). This means that administrators must be thoroughly convinced about their institutions' advantages.

3.3.4 Assessment standardization

One of the challenges facing CBC in higher education is standardizing the mechanisms by which competencies or skills are assessed. This is because, being a personalized learning approach, CBC focuses largely on subject mastery, irrespective of the place, time, and pathway to completion (Gallardo, 2020). The concerns that institutions struggle with in terms of assessment implementation include how to measure each student for every performance outcome, how to identify opportunities for learners to demonstrate individualized subject mastery without adhering to standardized performance outcomes, and who determines the student learning outcomes, and should they vary from institution to institution.

3.3.5 Broad recognition and understanding

Competency-based learning is a relatively new learning model. Students graduating through this learning method are sometimes greeted by skeptical employers unaware of the model (Strong et al., 2020). Additionally, many employers in the job market are rigid about hiring students who pass traditional educational programs and attain a certain grade (Alam & Forhad, 2021).

These are the challenges that were repetitive in the empirical studies reviewed. Other challenges were specific to the study's areas and needed specific resolution.

3.4 Strategies for Designing Improved Competency-Based Assessment

Competency-based assessment strategies are designed to improve teaching and learning in a setting. The assessment criteria should be clear, specific, measurable, and based on the expected performance levels for the job role and the organization. Yang, Wagh, and Draganov (2020) identified different strategies, but the common ones are the use of competent teachers, provision of facilities for teaching, minimum class size standard of 45 pupils, in-service training of teachers, prior learning to identify learners' talents and weaknesses and secure places where students can practice their learned skills.

4. Conclusions and Recommendations

4.1 Conclusion

A competency-based curriculum is the current and motivating learning that the world focuses on for the learners to apply the acquired skills in the real world of work. We, therefore, conclude that in a competence-based assessment, the

assessor must begin with prior learning to identify the talents of the learners and some weaknesses, and after that, daily monitoring of the teaching using formative and summative can be used. We also conclude that evaluative and placement assessments are paramount, allowing learners to be categorized based on their ability to apply skills acquired. These evaluations are important because they are arranged chronologically based on how the implementers could understand and design a lesson plan to enable even the mediocrity to copy the lesson plan. The competency-based assessment is effective, provided that implementers are competent, facilities are available, and class sizes are maintained at a minimum.

4.2 Recommendations

The study recommends that, for the better outcome of the competency-based assessment, the implementers (Teachers) should get proper training and awareness on the importance of the system. This will motivate them to do their best using the lesson plan designed to achieve the intended goals.

Education implementers, such as teachers, should adopt all types of competence-based assessments, including diagnostic, formative, summative, and evaluative assessments, and place them in chronological order. This will enable them to understand the learners' talents and weaknesses and, therefore, design lesson plans that will fit learners according to their abilities and environment.

For the betterment of competence-based assessment, the availability of competent teachers, facilities, and maintenance of minimal class size is paramount. A lack of competent teachers and facilities and the overclouding of classes have been mentioned as the bottlenecks in competence-based assessment.

Preparing sufficient teachers and classes for competency-based education is paramount because most studies that evaluate competence-based curricula mention class size as one of the significant challenges.

The teaching and learning should use the model based on the local environment of the learners to allow the learners to synthesize and practice based on the real situation encountered. Therefore, the implementers of such a curriculum should be of the discipline required and well-trained to execute the duty needed.

Practical training for both primary and secondary school students should be introduced to enable them to practice and apply the skills and knowledge they acquire during the learning process. Also, self-reliance education should be emphasized to enable learners to gain skills that can be applied in real life.

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