

Determinants of instructors' attitudes toward competency-based curriculum in Tanzanian technical education and training: a correlational study

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Abstract. Instructors play a crucial role in implementing a competency-based curriculum (CBC), and their attitudes are a significant factor for successful execution. However, their attitudes toward CBC in Tanzanian technical education and training (TET) institutions are unknown. Specifically, this study investigated the predictive power of institutional factors (physical resources, management ethos, professional development), CBC attributes (relative advantage, complexity, observability, and compatibility), and instructors' profiles on attitudes toward CBC in Tanzania TET institutions. A quantitative correlational research design was employed to generate data. Stratified and simple random sampling techniques were used to select the study areas, TET institutions, and instructors. A total of 337 instructors from 50 TET institutions across three regions – Mwanza, Dodoma, and Arusha – participated in the study. Data were collected through a structured questionnaire and analysed using descriptive statistics, Pearson correlation and hierarchical regression. Findings revealed that institutional factors, CBC attributes, and instructors' profiles, especially age, teaching experience and CBC training, significantly predict instructors' attitudes toward the CBC. However, gender, education level, and promotion rank were not statistically significant predictors. The study recommends capacity building for instructors, establishing a collaborative network for curriculum planning between TET institutions and regulatory bodies, and effective resource allocation and infrastructure improvements. These provide the foundation for enhancing instructors' attitudes while improving CBC implementation by focusing on key principles, addressing systemic challenges, and improving educational outcomes in Tanzania's TET sector.

Keywords: attitude, competency-based curriculum, instructors, technical education and training

1. Introduction

The global education landscape is undergoing a significant shift towards a competency-based curriculum (CBC), which is emerging as a paradigm shift to keep pace with changing labour market demand. The move to CBC aims to address persistent gaps among graduates leaving schools with only content knowledge, even though the modern economy requires graduates capable of adapting, being skilled, and being innovative. This call for transformation is answered by CBC's emphasis on skill development and career readiness at the centre of learning and training [60]. The CBC has gained prominence for its ability to develop transferable skills, including critical thinking, problem-solving, creativity, teamwork, and adaptability, which aligns with

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*Educational
Dimension*



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21st-century labour market demands [20]. More than a shift in policy, CBC emphasises pedagogical changes to support self-employment and innovative skills among graduates [93]. Sustainable Development Goal 4.7 and knowledge-based economies, which call for bridging the gap between education and industry [56, 60], make CBC critical to any education system.

Several countries worldwide have adopted CBC at various education levels, including TET, to align education and training with the demands of the knowledge economy and modern industry. However, a comparative review of recent studies reveals that the global implementation of CBC has encountered significant and recurring challenges [19, 53, 63, 97, 104, 113, 127]. Specifically, these studies consistently report impediments such as inadequate teacher preparation, shortages of essential resources and infrastructure, and limited parental involvement. For instance, insufficient teacher training often leaves educators ill-equipped to deliver CBC effectively, while resource constraints such as a lack of teaching materials and overcrowded classrooms further hinder implementation, particularly in under-resourced regions. Additionally, parental engagement in CBC tends to be minimal, which can negatively impact student learning outcomes. These issues have collectively impeded the effective achievement of CBC objectives. Although many countries have initiated various strategies to mitigate these challenges, the overall level of CBC implementation remains low [93, 121]. While these studies vary geographically, they commonly highlight the notable gaps between CBC policy demands and the actual realities of classroom practice. As a result, CBC has yet to deliver its intended socio-economic benefits at either the individual or national level [63, 127]. This synthesis underscores the need for further research, particularly from instructors' perspective, to better understand and address the determinants of effective CBC implementation.

Tanzania is cognisant that CBC has the potential to equip learners with both academic knowledge and industry-ready practical skills aimed at fostering labour force readiness [64, 84]. As such, CBC has been adopted across all education levels, including TET, which is recognised as a critical driver of economic development and a strategic response to unemployment in the country. In line with this, the National Council for Technical Education (NACTE) introduced CBC in TET institutions in 2002, drawing insights from international research and practices [128]. The purpose was to bridge existing skills gaps by aligning training with industry needs and producing adequate, reliable, acceptable, and competent technical personnel capable of contributing to economic development across various sectors and addressing unemployment challenges [22, 28, 56, 132].

To effect implementation of CBC in TET institutions the government has made significant efforts to ensure the effective implementation of CBC in TET institutions, including policy directives instructors' training on CBC principles, improvement of teaching and learning infrastructure and ICT resources, addressing the instructor-student ratios, developing comprehensive CBC guidelines, establishing quality assurance units within each TET institution, and conducting monitoring and evaluation [130, 132–134]. These initiatives aimed to establish the foundational requirements for successful CBC implementation and ensure its objectives are met. Through these interventions, the government anticipates that instructors will effectively integrate CBC instructional principles into TET classroom practices.

Despite these efforts, implementing CBC in TET institutions remains a significant challenge in Tanzania [120, 128]. Studies consistently reveal the persistence of traditional instructional practices in TET classrooms, contrary to policy mandates for innovative teaching methods [71, 128, 138]. These studies highlight that in Tanzania, TET institutions, instructors often rely on traditional lectures, focusing on content coverage, and primarily use paper-based assessments. This approach promotes

memorisation rather than the demonstration of defined skills. Such tendencies may indicate a reluctance to embrace pedagogical change, potentially resulting from instructors' beliefs about the value or practical use of CBC instructional methods and principles. This highlights the need to understand how the instructors' attitudes influence their willingness, readiness, and motivation to make pedagogical choices [15, 125].

Drawing from existing literature, the successful implementation of curriculum reforms, such as CBC, is influenced by multiple factors, with instructors' attitudes being a critical determinant. Research reveals that neglecting educators' perspectives can jeopardise even well-designed programs, emphasising the need to address their attitudes during reform processes [91, 100, 139]. Instructors' attitudes toward CBC have been extensively studied across diverse educational contexts globally [10, 16, 22, 28, 56, 142]. While findings vary across settings and methodologies, there is consensus that instructors' attitudes significantly influence the success or failure of CBC implementation.

Positive attitudes among instructors are regarded as foundational for the successful adoption and execution of CBC reforms [95, 96]. For instance, Mwangunga, Wanjala and Kisilu [96] reported that trainers in Kenya demonstrated a deep understanding of the principles and objectives underpinning Competency-Based Education and Training (CBET). Similarly, Rogers [116] identified a positive correlation between teachers' attitudes toward CBC and its effective implementation in the United States. Other studies have confirmed that instructors' favourable perceptions of competency-based approaches are closely linked to their practical application in classrooms [10, 98]. These findings underscore the importance of fostering positive attitudes to enhance curriculum reform outcomes.

In many countries, including Tanzania, curriculum reform often overlooks instructors' perspectives during the planning and implementation stages. Mohamed and Karuku [86], Mulenga and Mwanza [90], Mwangunga, Wanjala and Kisilu [96] and Nzima [105] observed that such oversight raises concerns about implementers' commitment to CBC implementation on the ground. This undermines their sense of ownership and engagement, which may negatively affect the implementation of CBC training. Since instructors are key change agents in educational systems, cultivating positive attitudes is essential for successful CBC implementation, particularly in TET institutions. As Ajzen [4] noted, attitudes shape individual choices and drive motivation and actions. Fishbein and Ajzen [44] supports this argument, underscoring the indispensable role of individual attitudes in shaping one's decision-making process. This theory supports the assumption that instructors' attitudes towards CBC reforms significantly shape how they adopt and implement CBC across various learning settings. Thus, overlooking instructors' attitudes may jeopardise the well-designed curriculum long before it reaches the classroom. In response to such a situation, this study was designed to explore Tanzanian TET instructors' attitudes toward CBC to understand how attitude supports effective implementation and its alignment with instructional practices.

2. Literature review

2.1. Theoretical framework

2.1.1. Attitude and its components

Attitude, a complex and multifaceted construct and an often-elusive concept is challenging to define [145]. It has been interpreted in various ways by numerous scholars [42, 55, 77]. Despite subtle definitions among scholars, there is a consensus that attitude is best defined as evaluative judgments shaped by beliefs, emotions, and

overt behaviour [11]. These evaluative responses reflect approval or disapproval, liking or disliking, and judgments of enjoyable-unenjoyable, desirable-undesirable, good-bad, or pleasant-unpleasant [8]. The multicomponent Cognitive-Affective-Conative (CAC) Model provides a valuable framework for better understanding attitudes' multifaceted nature. This model asserts that attitudes are not merely one-dimensional evaluations but are constructed from three interrelated components: cognition, affect, and conation [23]. Figure 1 visualises a CAC model as a multi-component nature of attitudes as summary evaluations that have cognitive, affective and conative of the CAC model.

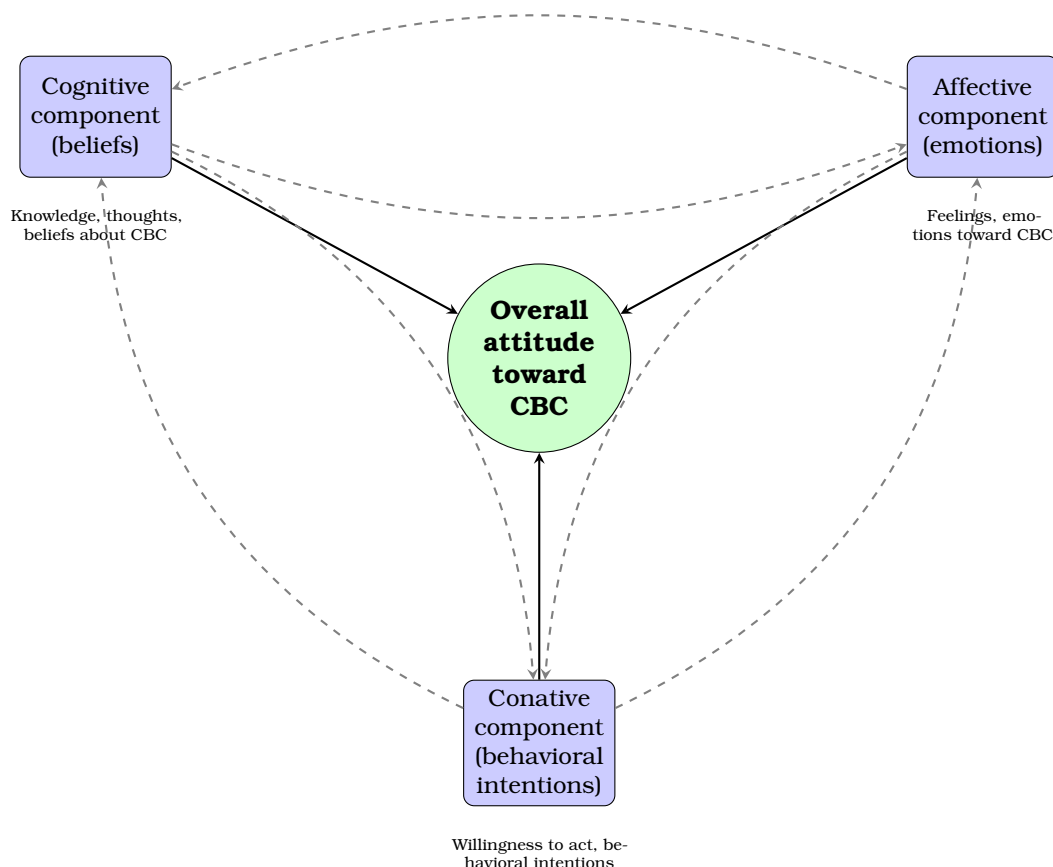


Figure 1: The multicomponent CAC model of attitude.

The CAC model posits that attitudes are constructed from three interconnected components: cognition (beliefs), affect (emotions), and conation (behavioural intentions), which collectively represent an overall evaluation of an object [5, 55]. Each component can be positive or negative, and while independent, they work collaboratively to shape an individual's overall attitude. These components are hierarchical and measurable, inferred from observable and measurable responses [6]. In essence, the CAC model asserts that each response category reflects a distinct component of attitude [6]. This conceptualisation suggests that to develop a comprehensive understanding of instructors' attitudes towards CBC, analysing these distinct yet interrelated dimensions is critical, as they collectively influence how instructors respond to various stimuli in their environment.

The cognitive component of attitude. According to Haddock and Maio [55], the cognitive component of attitude encompasses an individual's beliefs, thoughts, and knowledge about an object, shaping their overall evaluation. These beliefs are formed through experiences, socialisation, and information from various sources [26, 124]. Cognitive

representations are associations between the object and its attributes, where the strength of these associations depends on the individual's knowledge or experience [7, 29, 68]. Cognitive attitudes influence perceptions and are expressed verbally and nonverbally [5, 6], shaping how individuals interpret and react to stimuli. Ultimately, cognitive evaluations form a foundation for general attitudes [44, 55], where positive experiences lead to positive attitudes, and negative experiences may result in negative attitudes [40]. Thus, an instructor's perception of CBC, whether favourable or unfavourable, is rooted in their subjective beliefs regarding its effectiveness and relevance within their teaching practices (see Otara et al. [107]). Understanding how beliefs shape attitudes provides insights into how instructors perceive and engage with CBC.

The affective component of attitude. This component encompasses the feelings and emotions associated with an attitude object [24, 55]. It reflects an individual's emotional reactions [1], influencing behaviour through physiological responses [6] and felt experiences [24, 49]. Triggered by cognitive structures shaped by personal experiences and values, these affective responses result from the perceived importance of the attitude object [44]. Positive or negative emotional expressions significantly impact engagement and learning outcomes [75, 83, 88], underscoring the importance of educator emotional responses in educational settings. For example, instructors' expressions of disgust or admiration toward CBC reflect their affective attitude, influencing student engagement and learning outcomes.

The conative component of attitude. This component encompasses an individual's behavioural intentions or predispositions to act in a certain way toward an attitude object [1, 6, 51, 55, 66]. It reflects the likelihood of translating cognitive and affective evaluations into observable actions [39]. For instructors, this component is manifested in their willingness and commitment to involvement with CBC initiatives [44]. Instructors who exhibit positive conative attitudes may actively advocate for management to enhance training opportunities related to CBC, seek out additional information about CBC, participate in training sessions themselves, encourage colleagues to engage in professional development, conduct research, and produce relevant literature regarding CBC. This component is critical in understanding how instructors' attitudes influence their actual classroom behaviour, as it bridges the gap between internal evaluations and external actions. Thus, examining the conative dimension provides insights into the practical implications of instructors' attitudes toward CBC implementation.

In summary, drawing from the CAC model, instructors' attitudes towards CBC are multifaceted, encompassing beliefs, emotions, and behavioural intentions, as defined by the cognitive, affective, and conative components. This holistic view, supported by the CAC model, underscores the importance of understanding how these interrelated dimensions collectively influence instructors' perceptions and actions. Institutional factors, CBC attributes, and instructors' profiles are hypothesised to play pivotal roles in shaping these attitudes, impacting the successful implementation of CBC in TET institutions. This study explores these influences in greater detail to provide insights into strategies for enhancing instructor attitudes and improving the overall effectiveness of CBC in Tanzania's TET institutions.

2.1.2. Reconceptualizing competency-based curriculum

CBC has been recognised as an approach prioritising the demonstration of specific competencies regardless of time spent [76]. It emphasises essential knowledge, skills, values, and behaviours applicable in the real world, focusing on student outcomes and competency development. Such a curriculum is grounded in constructivist principles

that place the learner's experience at the centre [109]. It challenges instructors to serve as facilitators responsible for designing participatory, contextualised, and adaptable strategies that potentially promote competency among learners. Equally, CBC is essential in fostering lifelong learning and supporting the development of soft skills and professional competencies [28]. CBC represents a complex and practical educational paradigm that demands instructors' willingness, acceptance, readiness, and creativity for successful implementation. Effective delivery of CBC requires instructors to perceive and align with curriculum goals while demonstrating fidelity, self-awareness, intention, and commitment.

Research indicates that when instructors feel excluded from the curriculum development process – often dominated by higher authorities at ministerial levels – this lack of involvement hinders their sense of ownership and fosters negative perceptions toward the curriculum, which could lead to resistance to its implementation [19, 102]. Literature indicates that CBC implementation is influenced by many factors, including instructors' attitudes. Attitudes toward CBC have been widely studied across various educational institutions globally [10, 16, 22, 28, 56, 142]. These studies have shown varying results, yet they accept that educators' attitudes have power over CBC implementation. Positive attitudes among educators are considered crucial for the successful implementation of CBC [95, 96].

2.2. Determinants of instructor's attitudes towards competency-based curriculum

Instructors' attitudes toward CBC are influenced by a complex interplay of factors, categorised into instructors' demographic profiles, institutional factors, and CBC attributes. These influences are underpinned by established theoretical models and supported by empirical evidence. Examining these influences is essential for developing a comprehensive conception of the factors shaping educators' perceptions and behaviours in TET institutions.

2.2.1. Instructors profile

Profile variables, including age, gender, education level, teaching experience and training, academic grade level, and other personality attributes such as knowledge, skills, beliefs, self-efficacy and exposure, have been identified as potential predictors of attitudes toward CBC [17, 43, 65, 93, 94, 107]. For example, a study by Ngeno, Mwoma and Mweru [101] suggests that younger instructors may be more receptive to innovative teaching methods due to their greater exposure to technology and contemporary pedagogical practices. Likewise, teaching experience influences educators' attitudes toward CBC by enhancing their confidence, adaptability, and effectiveness. Alufohai and Ibhaifidon [17] and Putman [112] found that increased teaching experience influenced classroom management skills and self-efficacy.

Blazar and Kraft [27] found that experienced teachers often develop stronger classroom management skills and emotional support practices than their counterparts. Equally, Mwagunga, Wanjala and Kisilu [96] found that training equips educators with the skills to effectively implement CBC, fostering confidence in their ability to teach and assess student competencies. This confidence is crucial for developing a positive attitude toward CBC, as educators feel empowered to manage and adapt to the curriculum's demands. Therefore, when considering whether to adopt a novel idea, people are evaluating the idea itself and reflecting on their own unique perspectives and predispositions.

2.2.2. Institutional factors

Institutional factors, encompassing physical resources, management ethos, and professional development opportunities, play a crucial role in shaping instructors'

attitudes toward CBC [22, 28, 56, 101, 107]. These studies highlight that the availability of adequate physical resources, such as CBC-aligned textbooks, technology, and laboratory equipment, can significantly impact instructors' ability to implement the curriculum effectively. Conversely, inadequate resources, insufficient training, exclusion from curriculum development, absence of adequate assessment tools, a lack of clear guidelines, and heavy workloads can lead to frustration and a negative perception of CBC among educators [63, 85, 107, 129] of CBC [102, 128]. A supportive management ethos fosters positive attitudes toward CBC by creating an environment of collaboration, recognition, and professional growth. Research highlights that management's open communication and mentoring services enhance teachers' self-efficacy, autonomy, and innovativeness, reducing resistance to change and fostering commitment to implementing the CBC [72, 93, 140]. This supportive culture motivates engagement in CBC activities and reinforces instructors' perceptions of the curriculum as a valuable tool for educational reform [50, 144]. This culture helps instructors see CBC instructional approaches as not just a policy and institutional requirement but a meaningful and effective pedagogical approach to improve training and learning.

2.2.3. CBC attributes

CBC attributes can influence instructors' attitudes, including relative advantage, complexity, compatibility, and observability. Relative advantage refers to the extent to which CBC is perceived as superior to traditional teaching methods regarding student learning outcomes and workforce readiness. Complexity refers to the perceived difficulty of understanding and implementing CBC principles and practices [13]. Highlighted by Rogers' diffusion of innovation theory [118], the perceived attributes of innovation are critical determinants of its acceptance. For CBC to be effectively implemented within diverse educational contexts, it is crucial to understand how instructors perceive these attributes [43, 59].

Hayes et al. [58] found that an innovation's perceived relative advantage and observability allow individuals to experiment, visualise outcomes, and mitigate perceived risks. Research indicates that misalignment between CBC and relevant standards and a lack of awareness among stakeholders can hinder its acceptance and effective implementation [79, 82]. These findings support Forrer, Wyant and Gordin [46] and Noh and Lee [103] that reluctance to embrace these methodologies can be attributed to pedagogical frameworks, which are also linked to inadequate training and resources. For example, Zayapragassarazan, Kumar and Kadambari [146] report that the medical curriculum, which reflects and aligns medical education with contemporary healthcare needs, was highly appreciated by faculty participants. Implying that a relevant, innovative, and adaptable curriculum motivates and influences the attitudes of instructors.

Generally, the literature highlights that instructors' attitudes toward CBC are fundamentally influenced by their perceptions of its attributes [117] as institutional factors and individual instructor characteristics. Limited resources can hinder effective implementation, leading to frustration and affecting instructors' perceptions of CBC's utility and ease of use [34, 100, 135]. However, despite the growing body of research on instructors' attitudes toward CBC, the literature reveals notable contradictions and unresolved tensions. While several studies report that positive instructor attitudes are foundational for successful CBC implementation [96, 98, 116], others highlight persistent resistance or ambivalence among instructors, often attributed to inadequate training, resource shortages, or lack of institutional support [19, 92, 127]. For example, although Mwangunga, Wanjala and Kisilu [96] found deep understanding and favourable attitudes among Kenyan trainers, Kanyonga, Mtana and Wendt [71] and Tambwe [128] observed that Tanzanian instructors continue to rely on traditional

teaching methods, suggesting a disconnect between policy and classroom practice. Furthermore, while some research emphasises the role of demographic factors such as age and experience in shaping attitudes [10, 28], other studies find these variables to be less influential compared to institutional and curricular factors [16, 56]. These inconsistencies underscore the need for context-specific investigations that account for the interplay of personal, institutional, and curricular dynamics. By addressing these gaps and contradictions, the present study seeks to clarify the determinants of instructors' attitudes toward CBC within Tanzanian TET institutions, thereby contributing to a more nuanced understanding of the factors that facilitate or hinder curriculum reform.

2.3. The present study

2.3.1. Conceptual framework

Figure 2 presents the conceptual framework guiding this study. Drawing on the Cognitive-Affective-Conative (CAC) model and prior research, the framework illustrates how three sets of independent variables—institutional factors (physical resources, management ethos, and professional development), CBC attributes (relative advantage, complexity, observability, and compatibility), and instructor profiles (demographic characteristics such as age, gender, education, teaching experience, and promotion rank)—are hypothesised to influence instructors' attitudes toward the CBC in Tanzanian TET institutions. Instructors' attitudes comprise cognitive, affective, and conative components. The arrows in the framework indicate the hypothesised predictive relationships tested in this study.

Building on this framework, the present study aims to determine the predictive power of institutional factors, CBC attributes, and instructor demographic profiles on instructors' attitudes toward CBC in Tanzanian TET institutions. This study addresses gaps in the literature regarding the interplay of these factors and provides context-specific evidence to inform policy and practice. Addressing this gap is not merely an academic exercise but crucial for optimising CBC implementation and enhancing educational outcomes.

2.3.2. Objective and hypothesis of the study

Specifically, the study seeks to address the following research objective and hypothesis:

- **Specific objective:** To determine the predictive power of institutional factors, CBC attributes, and instructor demographics on instructors' attitudes toward CBC in Tanzanian TET institutions.
- **Hypothesis:** Institutional factors, CBC attributes, and instructor profiles significantly predict instructors' attitudes toward CBC in Tanzanian TET institutions (H_a).

3. Methodology

3.1. Approach and design

This study employs a quantitative, correlational design to explore the relationships between the variables under investigation [54]. Questionnaires were used to collect data from a large sample of instructors across diverse TET contexts. This design allowed for examining data patterns without manipulating variables or implementing interventions, thus adhering to ethical considerations in educational settings [2]. The large sample size enhances the generalisability of the findings, which can inform future training and policy decisions aimed at improving the adoption and implementation of CBC.

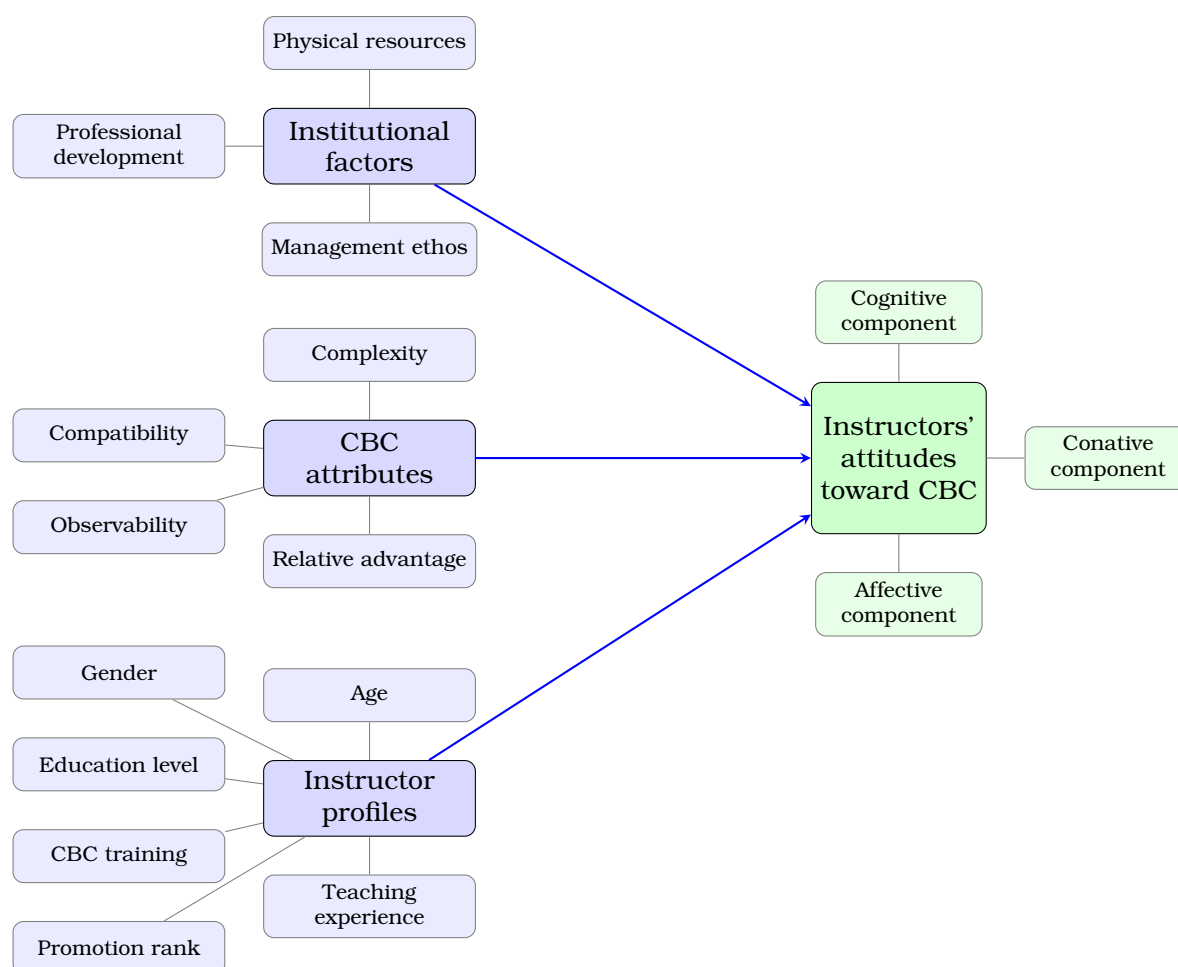


Figure 2: Conceptual framework for predictors of instructors' attitudes toward CBC in Tanzanian TET institutions.

3.2. Setting of the study

This study was conducted in three regions: Mwanza, Arusha, and Dodoma, which were randomly selected from lake, north, and central zones recognised by the NACTVET. These three zones account for 41% ($n=198$) out of a total of 430 TET institutions, with the selected regions representing 45% ($n=90$) of the 198 institutions within these zones [137]. The stratified random sampling method was employed in selecting three regions from three zones to ensure an unbiased representation of the country's diversity. By relying on established research practices, these three regions ensure the representation of the country's diversity in TET institutions in a way that reflects the broader national context. The selected study sites generated substantial data that facilitated the derivation of statistically justifiable results. Thus, cluster and stratified random sampling were employed to select zones, regions and TET institutions. These techniques improved the external validity of the findings and accurately reflected the characteristics of the larger population.

3.3. Population and participant of the study

The study population consisted of instructors from three regions of TET institutions. Tanzanian TET institutions were selected due to their central role in national skills development and documented challenges in CBC implementation [130]. The study focused on instructors in Tanzanian TET institutions because they are the primary implementers of the CBC. Understanding their attitudes is crucial for successfully adopting and sustaining CBC reforms. Despite extensive policy efforts to promote

CBC, little is known about how instructors in TET institutions perceive and engage with these reforms in the Tanzanian context. The study aims to provide actionable insights for policymakers and educational leaders to enhance CBC implementation and improve educational outcomes by targeting this population.

The total instructor population registered across three zones was 4,608, with an estimated 2,073 instructors in the selected regions. This estimate was derived using proportional allocation (45%), based on the TET institutional proportionality [108, 131]. From this regional population, the Yamane' sample size formula [143] was employed to obtain 350 instructors, who were then randomly selected to participate in the study. The number of instructors per institution was obtained from either the human resource manager or heads of departments. Specifically, stratified sampling was used to select TET institutions and regions to ensure regional representation across Mwanza, Dodoma, and Arusha, followed by a simple random sampling of 350 instructors. Ultimately, 337 instructors returned completed questionnaires, representing a high response rate. To facilitate random selection, pieces of paper labelled "accepted" and "not accepted" were utilised.

3.4. Procedure and ethical issues

Data was collected from May to September 2024 following approval from the University of Dodoma. Research permits are issued by the Tanzania Commission for Science and Technology (COSTECH) in Tanzania. However, university vice-chancellors are authorised to issue permits for their staff and students on behalf of COSTECH. Since this study was conducted by a student and two lecturers from the University of Dodoma, the university issued a research permit. A permission letter outlining the study's purpose was submitted to NACTVET, the regulatory body for TET institutions, which subsequently provided an official permission letter for access to respective TET institutions. Upon arrival at each institution, the researcher was introduced by management to department heads and instructors. The purpose and objectives of the study were explained before distributing paper questionnaires. Informed consent was obtained from all participants prior to completing the questionnaires. Participants were assured that their involvement was voluntary, confidential, and anonymous and that no personal information would be used beyond academic purposes. Questionnaires were completed in person with support from host instructors and department heads. Of the 350 instructors sampled, 337 willingly participated and completed the questionnaires.

3.5. Study variables

This study examined the following variables:

- **Dependent variable:** The study had one dependent variable: instructors' attitudes toward CBC, operationalised using the cognitive, affective, and conative components as described in the CAC model.
- **Independent variables:** The study had three independent variables:
 1. **Institutional factors:** Availability of physical resources, management support, and professional development opportunities, as perceived by instructors;
 2. **CBC attributes:** Characteristics of the CBC (relative advantage, complexity, observability, and compatibility), as perceived by instructors;
 3. **Instructor profiles:** Instructors characteristics, including gender, age, education level, promotion rank, training, and teaching experience.

The study examines the predictive relationships between these independent and dependent variables using regression analysis.

3.6. Measures

Data were collected using a structured questionnaire comprising three main scales: the Multidimensional Attitudes Toward Competence-Based Curriculum Scale (MATCBCS), the Competence-Based Curriculum Attributes Scale (CBCAS), and the Institutional Attribute Scale (IAS). All items were adapted from previously validated instruments, and a comprehensive review of the relevant literature was to ensure content validity and contextual relevance.

For the MATCBCS, items were selected and adapted from established attitude scales measuring educators' attitudes toward educational innovations (e.g., [12, 25, 32, 33, 35, 47, 52, 81, 106, 122, 123]). CBCAS items were adapted from validated instruments and literature focusing on the perceived attributes of educational innovations (e.g., [12, 21, 41, 87]). IAS items were adapted from instruments and studies examining institutional factors in educational settings (e.g., [3, 45, 48, 74, 110, 115]).

The adaptation process involved several steps. First, potential items were reviewed to ensure they measured the intended constructs and were relevant to the Tanzanian TET context. The primary criteria for item selection were (1) demonstrated measurement of the respective construct (content validity) and (2) evidence of strong psychometric properties, such as reliability and validity, reported in prior studies. Items were further reviewed and, where necessary, reworded for clarity and cultural appropriateness without altering the underlying meaning. To ensure face validity and contextual fit, the final instrument was reviewed by a panel of experts in psychology and curriculum studies.

To further ensure the reliability and clarity of the adapted instrument, a pilot study was conducted with 60 instructors from six TET institutions. Feedback from the pilot study was used to refine item wording, enhance clarity, and confirm the appropriateness of the scales for the Tanzanian TET context. Additionally, the questionnaire included demographic variables (gender, age, teaching experience, education level, promotion rank, and CBC training).

The MATCBCS comprised 18 items across three subscales: affective (items 1–6), cognitive (items 7–12), and conative (items 13–18). The CBCAS included 18 items divided into four subscales: relative advantage (5 items), complexity (4 items), compatibility (5 items), and observability (4 items). The IAS consisted of 16 items covering institutional factors: physical resources (5 items), management ethos (6 items), and professional development (5 items). All scales used a 5-point Likert-type format (1 = strongly disagree to 5 = strongly agree), enabling respondents to indicate their level of agreement and providing a nuanced understanding of instructors' perceptions.

The internal consistency reliability of the scales was assessed using Cronbach's alpha. The overall Cronbach's alpha values for the MATCBCS, CBCAS, and IAS were .902, .869, and .859, respectively. Subscale Cronbach's alpha values were as follows: MATCBCS – affective = .742, cognitive = .847, conative = .817; CBCAS – relative advantage = .827, compatibility = .768, complexity = .701, observability = .706. These values indicate acceptable internal consistency for the overall scales and their respective subscales. Furthermore, item analysis yielded indices ranging from 0.4 to 0.7, exceeding the minimum threshold of 0.3, thus confirming adequate item discrimination.

Exploratory factor analysis (EFA) using principal axis factoring (PAF) was conducted to evaluate the construct validity of the MATCBCS, CBCAS, and IAS. PAF was employed to estimate factor loadings and clarify the underlying factor structures. The factorability of the scales was supported by Kaiser-Meyer-Olkin (KMO) index values and Bartlett's test of sphericity. The KMO values were .770 for MATCBCS, .759 for

CBCAS, and .765 for IAS. Bartlett's test of sphericity yielded significant chi-square values: MATCBCS, $\chi^2 = 444.620$, $p < .001$; CBCAS, $\chi^2 = 486.961$, $p < .001$; IAS, $\chi^2 = 424.659$, $p < .001$. These results demonstrate that the correlation matrices were suitable for PAF, confirming the factorability of the items. Following rotation, all items exhibited factor loadings exceeding the minimum threshold of .3, suggesting the variables used in measuring the construct are appropriate, confirming the predictor's fitness in the model.

3.7. Data analysis

Descriptive statistics (frequencies, means, and standard deviations) were used to describe and highlight the variables. Inferential statistics (Pearson correlation and regression) were employed to determine relationships between variables and predict independent variables' influence on instructors' attitudes. Overall mean scores were used for correlational analyses and interpretations. Before conducting regression analysis, assumptions of linearity, homoscedasticity, normality of error terms, absence of autocorrelation, and absence of multicollinearity among predictor variables were verified.

4. Results

4.1. Descriptive results

This section presents the descriptive statistics for the study sample and key variables, providing an overview of instructors' profiles and the distribution of attitudes, institutional factors, and CBC attributes.

4.1.1. Descriptive statistics of instructors' profiles

Results in table 1 show that 73% of the participants ($n=246$) were male, while 27% ($n=91$) were female instructors. The age range of respondents varied from 25 to 55 years, with the largest segment (35.9%) being in the 25–30 age group. Regarding the educational qualifications, a significant majority of participants, 41.5% ($n=140$), hold master's degrees, while a small fraction possess doctoral degrees (4.7%, $n=16$). This indicates that most instructors have an advanced level of education. Promotion ranks results indicate that 43% ($n=145$) of the instructors are assistant lecturers, with only one individual (0.3%) holding the rank of professor. Data also revealed that 75.3% ($n=254$) of participants have undergone professional training in CBC. The result of teaching experience indicates that 53.4% ($n=180$) possessed relatively limited teaching experience, ranging from 0 to 5 years. Only a small fraction of the participants, 3.6% ($n=12$), reported having more than 20 years of experience.

4.1.2. Descriptive statistics of instructors' attitude toward CBC, CBC attributes and institutional factors

The results in table 2 indicate that the overall mean score for instructors' attitudes toward CBC is 4.02 ($SD = 0.99$), suggesting a high positive attitude, as this score falls within the range of 4.0 to 5.0. The mean scores for the attitude subscales are affective 4.01 ($SD = 1.015$), cognitive 4.05 ($SD = 0.96$), and conative 3.98 ($SD = 0.99$). The overall mean score for CBCA is 3.789 ($SD = 0.494$), suggesting mixed perceptions. The mean scores for the CBCA subscales are a relative advantage ($M = 4.117$, $SD = 0.646$), indicating that respondents largely view CBC as more favourable than traditional curricula. The complexity subscale had a moderate mean score ($M = 3.534$, $SD = 0.740$), suggesting mixed perceptions. Both compatibility ($M = 3.715$, $SD = 0.561$) and observability ($M = 3.724$, $SD = 0.701$) subscales also yielded moderate mean scores, indicating that CBC is perceived as somewhat aligned with existing teaching practices within TET institutions. Furthermore, the results reveal that all three institutional IAS subscales – physical resources ($M = 3.375$, $SD = 0.895$), management ethos

Table 1Frequency distribution of instructors' demographic profiles ($n=337$).

Variable	Category	Frequency	Percentage
Gender	Male	246	73
	Female	91	27
Age	25-30	121	35.9
	31-35	74	22.0
	36-40	61	18.1
	41-45	39	11.6
	46-50	33	9.8
	51-55	9	2.7
Level of education	PhD	16	4.7
	Master's degree	140	41.5
	Bachelor's degree	133	39.5
	Diploma	48	14.2
Promotion rank	Professor	1	0.3
	Senior lecturer	3	0.9
	Lecturer	17	5.5
	Assistant lecturer	145	43.0
	Tutorial assistant	135	40.1
	Other	36	10.7
CBC training	Received	254	75.3
	Not received	83	23.7
Teaching experience	0-5 years	180	53.4
	6-10 years	76	22.6
	11-15 years	50	14.8
	16-20 years	19	5.6
	Over 20 years	12	3.6

Table 2Descriptive statistics of study variables ($n=337$).

Construct	<i>M</i>	<i>SD</i>	Sub scales	<i>M</i>	<i>SD</i>
General attitude	4.02	0.99	Affective attitude	4.01333	1.015
			Cognitive attitude	4.05667	0.96333
			Conative attitude	3.98833	0.99167
Institutional Attributes	3.3461	0.59858	Physical resources	3.3715	0.89557
			Management ethos	3.3452	0.61737
			Professional development	3.3217	0.70511
CBC attributes	3.789	0.49427	Relative advantage	4.1175	0.64694
			Compatibility	3.7157	0.56105
			Complexity	3.5349	0.74057
			Observability	3.724	0.70174

($M = 3.345$, $SD = 0.617$), and professional development ($M = 3.321$, $SD = 0.705$) – show moderate perceptions among instructors. These findings indicate that instructors generally agree with the institutional factors influencing their attitudes toward CBC, as evidenced by a mean score of 3.34 ($SD = 0.60$).

4.2. Inferential statistics

This section presents the inferential statistical analyses conducted to examine the relationships between the study variables. These analyses address the research objective by determining the extent to which institutional factors, CBC attributes, and instructor profiles predict instructors' attitudes toward CBC.

4.2.1. Relationship between dependent variable (attitude) and independent variables

Pearson's (r) correlation coefficient was employed to assess both the direction and strength of the relationships between the instructor's attitude (dependent variable) and instructors' profiles, CBC attributes and institutional factors (independent variables). Table 3 presents a summary of the results.

Table 3

Correlations between instructor's attitude, profiles, CBC attributes and institutional factors.

Variable		Gender	Age	Experience	Level of education	Promotion rank	CBC training	CBC attributes	Institutional attributes	Attitude
General attitude	r	.034	.280**	.319**	.030	.136**	.428**	.735**	.315**	1
	Sig.	.532	.002	.001	.589	.036	.000	.000	.000	

**, Correlation is significant at the 0.01 level (2-tailed).

*, Correlation is significant at the 0.05 level (2-tailed).

Table 3 presents Pearson correlations between instructors' overall attitudes toward CBC and instructor demographic variables (gender, age, teaching experience, education level, promotion rank, and CBC training), CBCA and IA. Significant positive correlations ($p < .05$) were found for CBC training ($r = .428$, $p < .000$), teaching experience ($r = .319$, $p < .001$), age ($r = .280$, $p = .002$), and promotion rank ($r = .136$, $p = .036$), indicating that CBC training, teaching experience, age, and promotion rank positively influence instructors' attitudes toward CBC. Conversely, non-significant correlations were observed for gender ($r = .034$, $p = .532$) and education level ($r = .030$, $p = .589$), suggesting that gender and education level do not significantly influence instructors' attitudes toward CBC. Additionally, strong positive correlations were found between instructors' attitudes and CBC attributes ($r = .735$, $p < .000$) and institutional attributes ($r = .315$, $p < .000$), demonstrating that both CBC and institutional attributes (IA) significantly influence instructors' attitudes.

4.2.2. Predictive effect of institutional factors, CBC attributes and instructors profiles on instructors' attitudes toward CBC

Hierarchical multiple regression was employed to predict instructors' attitudes toward CBC based on perceived CBC attributes, institutional factors, and demographic variables. In this analysis, three models were generated. Summary of correlational results are presented in table 4.

Three hierarchical regression models were used to assess the predictors of instructors' attitudes toward CBC. In the first model, CBC attributes were entered, explaining 32% of the variance in instructors' attitudes [$F(1, 336) = 394.378$, $R^2 = .320$, $\Delta R^2 = .32$, $p < .000$]. The second model, which included institutional factors, significantly improved the model, explaining 64.8% of the variance [$F(2, 336) = 196.751$, $R^2 = .648$,

Table 4

Regression models predicting CBCA, IA and profiles for instructors' attitudes.

	Variable	β	t	Sig.
Model 1	(Constant)		8.558	.000
	CBC attributes	0.735	19.859	.000
Model statistics	$F(1, 336) = 394.378, p < .000$	$R^2 = 0.320$	$\Delta R^2 = 0.32$	
Model 2	(Constant)		8.265	.000
	CBC attributes	0.742	17.926	.000
	IAS attributes	0.015	0.372	0.014
Model statistics	$F(2, 336) = 196.751, p < .000$	$R^2 = 0.648$	$\Delta R^2 = 0.328$	
Model 3	(Constant)		6.45	.000
	CBC attributes	0.735	17.324	.000
	Institutional factors	0.022	0.507	0.013
	Gender	0.025	0.463	0.643
	Age	0.24	2.891	0.004
	Teaching experience	0.216	2.767	0.006
	Level of education	0.002	0.035	0.972
	CBC training	2.13	2.389	0.017
	Promotion rank	0.936	0.665	0.507
model statistics	$F(8, 336) = 49.783, p = .014$	$R^2 = 0.878$	$\Delta R^2 = 0.234$	

$\Delta R^2 = .328, p < .000$]. This model demonstrated a significant 32.8% increase in R^2 from the first model. The third model, incorporating CBC attributes, institutional factors, and instructor profile, further improved the model, explaining 87.8% of the variance [$F(8, 336) = 49.783, R^2 = .878, \Delta R^2 = .234, p < .014$]. This model showed a significant 23% increase in R^2 from the second model. The high F -ratios across all models indicate a robust framework for assessing the influence of CBC attributes, institutional factors, and instructor profiles.

To assess the individual contributions of predictors in the final model, standardised beta coefficients (β) were examined. Five variables – CBC attributes ($\beta = .735, p < .000$), institutional factors ($\beta = .022, p < .013$), age ($\beta = .24, p = .004$), teaching experience ($\beta = .216, p = .006$), and CBC training ($\beta = .213, p = .017$) – were identified as significant predictors of instructors' attitudes ($p < .05$). In contrast, gender ($\beta = .025, p = .643$), education level ($\beta = .002, p = .972$), and promotion rank ($\beta = .936, p = .507$) were not significant predictors. These findings indicate that while certain demographic variables significantly influence instructors' attitudes in TET institutions, others, such as gender, education level, and promotion rank, do not have a statistically significant impact. Nonetheless, it should be acknowledged that the lack of statistical significance does not entirely rule out the possibility that these variables may influence attitudes by chance or through mechanisms not captured in the current analysis. Thus, these variables cannot be entirely neglected, as their potential influence through unmeasured pathways or contextual factors is relevant to understanding instructor attitudes toward CBC.

5. Discussion

5.1. Instructors attitude toward CBC, CBC attributes and institutional factors

Results indicate that instructors' general attitude toward CBC and its attributes are higher and positive, acknowledging it as an innovative approach offering significant advantages, compatibility, and usability compared to traditional methods. This aligns with findings from studies emphasising the benefits of CBC [113]. Research highlights that CBC fosters learner-centredness approaches, flexibility, and accountability, which

educators often appreciate for improving learning outcomes and aligning curriculum with societal needs [61]. These positive attitudes are anticipated to influence the CBC implementation process. This concurs with Nacera's finding that teachers' positive attitudes towards CBC influence their implementation practices [98]. This is because instructors with a strong positive attitude effectively create classroom environments that support successful learning outcomes.

The study's results demonstrate distinct patterns in instructors' attitudes toward the CBC and its components, which the CAC model and relevant literature support [5, 55]. The high positive affective attitude ($M = 4.01$, $SD = 1.015$) reflects instructors' emotional responses, such as enthusiasm and satisfaction, toward CBC. This aligns with research indicating that CBC's emphasis on holistic learning and real-world applications often drives positive emotions, which enhance engagement and motivation in instructional practices [80]. Similarly, the higher cognitive attitude score ($M = 4.05$, $SD = 0.96$) suggests that instructors recognise the intellectual benefits of CBC, including its focus on critical thinking and skill development. Literature supports that cognitive factors like perceived relevance and clarity of curriculum objectives significantly influence educators' attitudes toward curriculum reforms [31, 78].

However, the slightly lower conative attitude score ($M = 3.98$, $SD = 0.99$) highlights challenges related to behavioural intentions or readiness to implement CBC. Studies have identified barriers such as inadequate preparation and resource constraints as common obstacles to effective implementation [89, 136]. Despite these challenges, results indicate that instructors primarily view CBC as more favourable than traditional curricula. This reflects its perceived utility in improving learning outcomes and aligning with competency-orientated teaching strategies [80]. These findings underscore the importance of addressing practical barriers through professional development and resource allocation to sustain positive attitudes and enhance CBC implementation.

Additionally, the study found a positive perception of instructors on CBC attributes. This favourable perception of CBC attributes in this study resonates with the idea that CBC provides structured thinking and realisation of learning outcomes. These findings align with previous research recognising CBC's potential to enhance students' employability skills and overall training quality [38, 62, 142]. Along the same line, studies report that instructors perceive CBC as having relative advantages and compatibility with existing systems, contributing to its high innovation score [10, 69, 98, 114, 116]. However, this study contrasts with research reporting negative attitudes toward CBC [71, 85, 90], suggesting that while a positive outlook is prevalent, it is not universal. This implies that although most individuals hold a positive view of CBC potentialities, some still do not share this optimism. This indicates a diversity of opinions among educators.

Again, a study revealed that instructors' perceptions of institutional factors are moderate. This suggests that while these factors are recognised as available, they may not be fully perceived as sufficient. This concurs with studies pointing out that many institutions are experiencing a paradigm shift from traditional curriculum to CBC but still facing challenges [61, 78, 89, 113]. This highlights potential challenges such as resource availability, administrative support, and professional development within many TET institutions in Tanzania. The institutional factors, such as large class sizes, teacher shortages, inadequate resources, insufficient training opportunities, exclusion from curriculum development processes, and heavy workloads, have significantly been mentioned to hinder implementers' perceptions and implementation of CBC [63, 85, 101, 102, 107, 128]. Accordingly, addressing these institutional challenges is crucial for fostering a favourable environment for implementing CBC effectively.

5.2. The influence and predictive effect of instructor profile, institutional factors and CBC attributes on instructors' attitudes toward CBC

Pearson correlation and regression analyses highlighted the significant influence and prediction of instructor profiles, institutional factors, and CBC attributes on instructors' attitudes toward CBC in TET institutions. Notably, instructor characteristics such as age, teaching experience, and training, along with CBC attributes and institutional factors, demonstrated statistically significant correlations with attitude ($p < .05$). This suggests that these factors play a critical role in shaping how instructors perceive CBC. Research highlights that experienced educators and those who have undergone specific CBC-related training are better equipped to adapt to curriculum changes, fostering positive attitudes and effective implementation [99, 105]. Conversely, weak, non-significant correlations between attitudes of some demographic variables, such as gender, education level, and promotion rank, exhibited that these factors have limited influence on attitudes toward CBC.

A positive correlation between CBC attributes and instructors' attitudes suggests a significant influence of CBC attributes on instructors' attitudes. This underscores the importance of designing curricula perceived as relevant, practical, and aligned with real-world applications. Institutional factors also demonstrated a significant correlation with instructors' attitudes. This highlighted the role of institutional factors in creating a supportive environment for CBC implementation. Adequate resources, supportive leadership, and structured processes are critical for fostering positive attitudes among educators. Studies have shown that institutions with strong leadership and resource availability have higher success rates in implementing curriculum changes [72, 93, 140].

This study's regression and correlation analyses highlight that instructors' profiles (age, teaching experience, and CBC-related training), institutional factors, and CBC attributes are significant predictors of attitudes toward the CBC in Tanzanian TET institutions. Notably, the regression model yielded an exceptionally high R^2 value of 87.8%, indicating that these factors collectively explain a substantial proportion of the variance in instructors' attitudes. Notably, the substantial increase in R^2 from Model 1 to Model 3 highlights the valuable contribution of instructor characteristics to understanding attitudes toward CBC. These (instructors characteristics, CBC attributes and institutional factors) collectively support the model's performance and underscore the importance of considering instructor characteristics in understanding attitudes toward CBC. This high R^2 aligns with Alkhurayyif [14], who reported an R^2 of 84.8% for institutional predictors but contrasts with other studies that found much lower explained variance (e.g., $R^2 = 0.099$ in [67]; $R^2 = 0.20$ in [9]; $R^2 = 0.48$ in [36]). The disparity may be due to the comprehensive inclusion of eight predictors in the current study and possible contextual homogeneity within Tanzanian TET institutions. Adapting validated scale items for this specific context may have enhanced measurement precision. However, such a high explained variance is uncommon in educational research and warrants cautious interpretation. Potential methodological artefacts, such as predictor interrelations (which were checked) and common method bias from self-report measures, cannot be entirely ruled out. Therefore, future studies should seek to replicate these findings in more diverse settings and consider using mixed-method designs to assess generalizability. Despite the precaution in the interpretation, the substantial-high R^2 in Model 3 and the unique coefficient of each predictor indicate that the instructor's characteristics, CBC attributes and institutional factors uniquely and collectively support the model's performance and underscore the importance of considering predictors in understanding attitudes toward CBC.

These findings are consistent with previous research demonstrating that instructors' demographic variables significantly influence attitudes toward curriculum reforms

[18, 37, 43, 57, 96, 101, 119, 126]. For example, Wang et al. [141] found that teachers' characteristics, such as low-level backward leadership, lack of practical ability, and low sense of identity, impact their curriculum leadership and perceptions. Amaireh [18], Hauuanga [57], and Mwagunga, Wanjala and Kisilu [96] demonstrated that teaching experience, professional development, and training shape instructors' attitudes toward competency-based education. Similarly, this study aligns with Ngeno, Mwoma and Mweru [101], who found that age significantly impacts teachers' attitudes, while gender does not. This suggests that more experienced instructors may be more receptive to CBC due to their accumulated pedagogical knowledge and perceived need for innovative teaching methods. Training also enhances knowledge and perceptions of new curricula. Furthermore, this study corroborates findings that gender exhibits minimal to no relationship with instructors' attitudes [98, 101]. In addition, the study concurred with regression analysis by Wang et al. [141] findings that individual factors such as the field significantly impacted teachers' perceptions.

The study is also consistent with literature supporting that curriculum attributes such as clear curriculum objectives and learner-centred approaches positively impact educators' perceptions, making them more receptive to CBC reforms and implying that perceived relevance, complexity, and observability influence the attitude and utilisation of the curriculum. For example, Zayapragassarazan, Kumar and Kadambari [146] found that faculty participants in the Medical Council of India' appreciated the new curriculum as they perceived its competency-based approach and relevance to societal demands and contemporary medical issues. Thus, it underscores the importance of designing relevant, practical, and aligned curricula with real-world applications.

Furthermore, the study concurs with previous studies demonstrating that institutional factors, including leadership, resource availability, and professional development, play a critical role in shaping positive attitudes and facilitating effective CBC implementation [28, 56, 93, 107]. These factors encompass physical resources, management ethos, professional development plans, infrastructure, technological resources, pedagogical assistance, and well-defined evaluation metrics that significantly contribute to faculty acceptance of CBC [93, 111]. Conversely, inadequate resources, insufficient training, exclusion from curriculum development, and heavy workloads can lead to frustration and negative perceptions of CBC among educators [63, 85, 107]. Furthermore, the absence of adequate assessment tools, a lack of clear guidelines, and obstacles related to technology availability contribute to negative perceptions [30, 129]. Furthermore, leadership and management are essential in motivating instructors to have positive perceptions and be effective toward CBC. For example, transformational leadership was a powerful tool for fostering supportive environments, enhancing teacher competencies, and promoting curriculum ownership, ultimately driving institutional effectiveness and educational innovation [70, 141]. Thus, Karakose et al. [73] suggests that promoting sustainable school leadership is indispensable for addressing the growing demands for effectiveness in educational systems, as it serves as a crucial tool for enhancing institutional performance and meeting evolving educational needs.

These findings suggest that policy interventions targeting physical resources, management ethos, and professional development opportunities will likely enhance instructor attitudes, facilitating more effective CBC implementation. Without robust institutional support, even well-designed curricula risk suboptimal outcomes due to instructor disengagement or resistance to change. Targeted sensitisation efforts addressing demographic variables, institutional factors, and CBC-specific attributes could further strengthen instructors' attitudes toward CBC adoption in Tanzania. This study underscores the critical integration of instructor profiles, institutional factors, and CBC attributes as strategies to address the multifaceted determinants

of instructor attitudes. Prioritising modifiable factors such as sustainable leadership practices, tailored CBC-aligned training, and equitable resource allocation can cultivate favourable instructor attitudes and reduce resistance to change. Such measures would enable CBC implementation, bridging the gap between policy intent and practice, particularly in resource-constrained settings where institutional support dictates educational innovation outcomes.

6. Conclusion and implication of the study

6.1. Conclusion

This study examined how demographic variables, institutional factors, and CBC attributes shape instructors' attitudes toward the CBC in Tanzanian TET institutions. The findings demonstrate that institutional factors, CBC attributes, and certain instructor characteristics – specifically age, training, and teaching experience – are significant predictors of positive attitudes toward CBC. In contrast, gender, education level, and promotion rank showed weak and non-significant associations. These results underscore the critical role of institutional resources, CBC attributes, and targeted professional development in fostering positive instructor attitudes. Strengthening these areas can enhance the successful implementation of CBC reforms. The study highlights the need for policymakers and institutional leaders to prioritise capacity building, improve resource allocation, and tailor professional development initiatives to address instructors' needs and curriculum demands. By actively engaging instructors and addressing institutional and curriculum-related factors, TET institutions can create a more supportive environment for CBC adoption, ultimately improving educational outcomes for learners.

6.2. Implication for theory and practice

6.2.1. Theoretical implications

This study contributes to understanding instructors' attitudes toward CBC in the context of Tanzanian TET institutions by empirically validating the influence of institutional factors, CBC attributes, and instructor profiles. The findings support the Cognitive-Affective-Conative (CAC) model as a robust framework for analysing attitudes in contexts of curriculum reform. By highlighting the relative importance of institutional resources and CBC compatibility, the study extends existing theories on curriculum adoption and implementation determinants.

6.2.2. Practical implications

Several practical steps are recommended for policymakers and institutional management to leverage the insights gained from this study. First, instructor training programmes should prioritise CBC-focused training, supported by ongoing professional development and regular in-service workshops. These workshops should emphasise practical application and innovative teaching strategies to equip instructors with the necessary knowledge, skills, and confidence for effective CBC implementation. Additionally, TET institutions should enhance administrative support by fostering collaboration among instructors, reducing excessive workloads, and involving instructors in instructional decision-making processes. Collaboration between department heads and instructors is essential for sharing best practices and addressing challenges collectively, thereby maintaining curriculum ownership and fidelity. Institutions should also ensure that robust systems are in place to monitor and encourage the involvement of instructors in CBC activities, which include research, knowledge sharing, and participation in professional dialogue. In order to further motivate instructors and sustain positive attitudes toward CBC, resources, mentorship, and incentives can be provided.

A second recommendation is that curriculum developers are encouraged to develop curricula that promote interdisciplinary approaches and holistic learning experiences that are relevant and flexible – establishing feedback mechanisms that will allow instructors to report challenges and suggest improvements, ensuring continuous curriculum refinement. At the policy level, NACTVET should foster collaborative networks among TET institutions, communities, non-governmental organisations, and regulatory bodies. Through such networks, national training initiatives can be promoted, and resources allocated for infrastructure improvements can be insured, ultimately facilitating the effective implementation of CBC. These measures can improve TET institutions' alignment with CBC principles, address systemic challenges, and enhance educational outcomes by fostering a positive attitude toward adopting CBC among instructors.

7. Limitations and future research

This study investigated the determinants of instructors' attitudes toward the CBC, focusing on the roles of demographic variables, institutional factors, and CBC attributes. Despite its strengths, the study has several limitations. First, its correlational design precludes causal inferences about the relationships between institutional factors, CBC attributes, instructor profiles, and attitudes toward CBC. Second, data were collected using self-reported questionnaires, which may be subject to response and social desirability biases. Third, while indicative of strong predictive power, the regression model's exceptionally high R^2 (87.8%) may reflect methodological artefacts such as common method bias or multicollinearity, necessitating cautious interpretation. Fourth, the sample was drawn from only three regions (Mwanza, Dodoma, and Arusha), which may limit the generalisability of the findings to other areas of Tanzania or beyond. Fifth, the study did not account for potential confounding variables such as salary, political influences, or cultural factors that may also affect instructors' attitudes. Finally, the study focused on quantitative data; future research could benefit from qualitative approaches to gain deeper insights into instructors' experiences and attitudes.

Future research should consider longitudinal or experimental designs to explore attitude changes over time and establish causality. Expanding the sample to include more regions or different educational contexts would enhance generalisability. Mixed-method studies could provide a more comprehensive understanding of the factors influencing instructors' attitudes toward CBC. Replication studies incorporating omitted variables (e.g., salary, political, and social-cultural factors) would further validate the model's explanatory power and the robustness of the high R^2 observed in this study.

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