Evaluating the Implementation of Quality Principles in Competence-Based Assessment at Private TVET Colleges: Perspectives, Differences, Influencing Factors, and Impacts on Student Competence

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Abstract

This study evaluates the implementation of quality principles in CBA at private TVET colleges in the Amhara Regional State. It employed a sequential explanatory mixed-methods approach, incorporating questionnaires, interviews, and document analysis. A questionnaire was distributed to 873 students and 189 teachers and assessors, including 47 items on a five-point Likert scale. Interviews involved 5 teachers, 4 assessors, 5 students, 2 deans, and 1 assessment center coordinator. The analysis included descriptive statistics such as proportions, means, and standard deviations, while inferential analysis utilized one-sample t-tests, Mann-Whitney U tests, and logistic regression. Qualitative data were analyzed through thematic and content analysis to gain a comprehensive understanding of CBA implementation. The findings indicated a significantly low implementation of CBA across all nine quality principles, with no substantial difference in perceptions between teachers and students. This overall low implementation adversely affected the quality of assessment and student competence. Key challenges identified included unethical interference of regulatory bodies and colleges, inadequate assessment literacy, unethical behavior among teachers and assessors, weak educational backgrounds, and dishonest conduct among students. The insufficient implementation of CBA principles in private TVET colleges complicates the relationship between students' perceptions of implementation and their competence. Consequently, it is essential to provide professional support for educational assessment approaches to regulatory bodies, colleges, assessors, and teachers. Standardizing the assessments of IOCA, NOCA, and ROCA is critical, along with clearly distinguishing the roles of teachers, assessment tool developers, and assessors to enhance assessment quality.

Keywords: competence-based assessment, quality principle, students' competence

1. Introduction

Assessments play a crucial role in improving educational outcomes and enhancing the impact of assessment results. To achieve this, teachers and school leaders must possess both theoretical and practical knowledge of learning and assessment processes (Mahapoonyanont, 2019). Assessment, teaching, and learning are interconnected, and research has demonstrated that effective assessment practices lead to improved teaching and better student performance (Mohammad et al., 2017). Specifically, passing a prior learning assessment is significant in competency-based education (CBE), as it allows trainees to earn college credit, certification, or advanced standing for further education or training (Valenzuela et al., 2016). Competency across institutional, national, and recruitment assessments is vital for progression from one level to another, facilitating the transition from graduation to employment and preparing individuals to become trainers in TVET institutions (MOE, 2010).

Competence-Based Assessment (CBA) emphasizes practical application and holistic evaluation. To ensure that CBA is effective and reliable, it is essential to critically examine its quality principles. Baartman et al. (2007) and Poulin & Matis (2015) identified ten quality principles of CBA: cost-effectiveness, fairness, currency, reliability, sufficiency, validity, meaningfulness, objectivity, feedback, and washback. Additionally, the Ministry of Labor in Mongolia identified nine key principles of quality assessment: validity, reliability, flexibility, fairness, sufficiency, authenticity,

currency, cost-effectiveness, and accessibility (MOL, 2011). Similarly, Oyunaa & Bert (2017) outlined nine quality principles, including validity, reliability, objectivity, authenticity, accessibility, effectiveness, cost-efficiency, currency, and sufficiency. Given the crucial role of assessment in the teaching and learning process, all types of assessments must adhere to high standards of validity, reliability, and usability. These dimensions enable researchers and educators to design and implement CBA that accurately reflects the knowledge, skills, and abilities of the individuals being evaluated. CBA is essential for accurately assessing a person's competencies, influencing the quality, validity, and usefulness of all human resource applications derived from assessments, including development, succession planning, and performance management (Van der & Potgieter, 2002). To ensure the validity, reliability, flexibility, fairness, authenticity, currency, and cost-effectiveness of CBA, it is crucial to employ appropriate strategies and adhere to its fundamental principles (Oyunaa & Bert, 2017; Smith & Keating, 2003). The principles of CBA emphasize industry standards, benchmarks, and learning targets, ultimately resulting in a judgment of either "Competent" or "Not Yet Competent" (MOE, 2010).

There is a notable lack of extensive research on the implementation of CBA in private TVET colleges, particularly in the Amhara Regional State. While a small number of studies exist on this topic in primary, secondary, and higher education globally, such research is scarce in Ethiopia. The Ministry of Education's report highlighted a neglect of CBA quality principles in TVET colleges (MOE, 2008). To address this gap, a preliminary study is being conducted in private TVET colleges in the Amhara Regional State, specifically in the South Gondar Administrative Zone, focusing on the implementation of quality assessment principles in CBE. The researcher believes that the issue of implementing these quality principles in CBE has not been adequately addressed, which inspired this study to assess the opinions of students and teachers regarding the implementation of quality principles of CBA and its impact on students' competencies. Additionally, the study aims to identify differences in opinions between teachers and students regarding CBA implementation in private TVET colleges. The findings will benefit students, teachers, assessors, colleges, the Amhara Occupational Competence Assessment and Certification Agency (AOCACA), the Amhara Educational Training Bureau (AETB), the Federal TVET Agency (FTA), and other relevant stakeholders by emphasizing the importance of teacher assessment competence.

2. Literature Review

This literature review aims to provide insights into existing research and theories related to the quality principles of CBA. Among the key quality principles in CBA are efficient resource utilization, fair payment systems for assessors, and overall economic sustainability (Brown & Race, 2012). Optimizing resource use without compromising quality, implementing equitable payment structures for assessors, and targeting specific areas for improvement enhance the cost-effectiveness and productivity of CBA (Henri et al., 2017; Tannenbaum & Yukl, 1992). Aligning training and assessment with job requirements helps bridge the gap between the training environment and actual work performance, further supporting the cost-effectiveness of CBA (Sclese & Hatala, 2013). CBA is grounded in principles of quality, fairness, alignment, and flexibility (Bral & Cunningham, 2016). At the assessment systems level, procedures like procedural fairness, documentation, multiple opportunities, multiple assessors, and validity evidence translate these values into practical components (Valentine et al., 2021). Furthermore, alignment ensures that tasks correspond with learning outcomes, while flexibility accommodates diverse learning styles (Baartman et al., 2007). Strategic interventions, including innovative assessment design and technology integration, enhance both fairness and flexibility, thereby contributing to students' skill development and knowledge retention. (Baartman et al.,2007; Jorgensen, 2020).

Authentic assessments are crucial to replicate real-world skills (Boud & Soler, 2016). Unlike traditional paper-and-pencil tests, which emphasize knowledge reproduction and low-level cognitive skills in artificial settings, authentic assessment tasks focus on knowledge construction, complex thinking, detailed communication, collaboration, and problem-solving in real contexts (Koh et al., 2012). Emphasizing authenticity underscores the importance of designing assessments that reflect the challenges learners will face in their professional lives (Boud & Soler, 2016). Reliability is also essential for consistent and accurate measurement of students' competence in CBE (Cronbach, 1951; Messick, 1989). Various types of reliability, such as test-retest and inter-rater reliability, must be considered (Fisher & Parolin, 2000). Addressing challenges like rater bias and standardization is crucial for maintaining the quality of CBE assessments (Sridharan et al., 2023).

Ensuring the sufficiency of assessments is critical for validity, requiring comprehensive coverage of competencies (Gipps, 1994). Aligning assessments with national standards contributes to the sufficiency of the evaluation process and supports validity (Gipps, 1994). Validity, a cornerstone of assessment quality, is explored through content,

criterion-related, and construct validity (Matsuzuka, 2020). Empirical studies investigate the relationship between validity and students' competence, emphasizing the need for innovative design, real-world scenarios, and technology integration to enhance validity in CBE (Matsuzuka, 2020).

Meaningfulness, which emphasizes clear purposes and relevance, and discrimination, which effectively distinguishes between competent and not-yet-competent individuals, are critical dimensions of assessment quality (Skorupiński, 2015). The objectivity of assessment refers to evaluating students' performance within a specific domain of competence, where their achievements are compared against a predetermined set of criteria, which aligns with criterion-referenced assessment (Ferahtia, 2021). It is widely believed that objective assessments are among the most reliable evaluation methods. Reliability is now viewed as a component of the validity argument, where validity pertains to the accuracy of measurement (Ferahtia, 2021). In any given context, validity is generally regarded as more important than its reliability (Kane, 2001). Objectivity is crucial for fair assessment procedures aligned with learning goals (Schis & Khan, 2021). Meaningful and timely feedback, as emphasized by Hattie and Timperley (2007), plays a crucial role in enhancing learning outcomes. Feedback should be descriptive, and specific, and guide improvement, addressing challenges such as class size and resource constraints (Skorupiński, 2015). Alderson and Wall (1993) explored the influences of assessment on students' approaches to learning in CBA. Well-designed assessments enhance teaching practices and motivate students, linking feedback to improved learning outcomes (Yan, 2021).

3. Methods and Materials

3.1 Research Design

The mixed methods research design combines quantitative and qualitative methodologies to gain a deeper understanding of research problems, offering a more comprehensive insight than using either approach alone. For this study, the sequential explanatory strategy was chosen.

3.2 Study Participants and Sampling Techniques

The quantitative study included 873 Level Four students and 189 teachers and assessors enrolled in private TVET colleges within the South Gonder administrative zone in the Amhara Regional State. These participants represented diverse fields such as Comprehensive Nursing, Accounting and Finance, Pharmacy, Medical Laboratory, and Database Administration, specifically focusing on Institutional Occupational Competence Assessment (IOCA), National Occupational Competence Assessment (NOCA), and Recruitment Occupational Competence Assessment (ROCA). In addition, the study involved interviews with five teachers, five students, four assessors, two deans, and one assessment center coordinator. The sample selection process was careful, taking into account factors such as expertise, resources, location, number of departments, and training from four private colleges. The study used purposive and simple random sampling for the quantitative study and convenience sampling for the qualitative study to select students.

3.3 Instrumentation

The primary instruments used in this study included a survey questionnaire, interviews, and document analysis. The survey aimed to evaluate the implementation of quality principles in CBA and its impact on students' competence in private TVET colleges. Initially, the questionnaire encompassed 14 dimensions related to quality principles, achieving a reliability score of .94. To ensure its appropriateness, a principal axis factor analysis was conducted. As a result of this analysis, the questionnaire was refined from 64 to 47 questions, and the number of factors decreased from 14 to 9. The determinant was found to be 1.621E-31, the Kaiser-Meyer-Olkin (KMO) measure was .888, the significance level was 0.001, and the total variance explained was 64.8%. In addition, interviews were conducted to gather insights from students, teachers, deans, assessors, and assessment center coordinators regarding the effectiveness of implementing quality principles in CBA. These interviews aimed to assess how CBA enhances students' competence and improves the teaching-learning process. Document analysis was also performed to understand the historical context of CBA. The insights gained from the interviews and document analysis were used to validate the findings from the questionnaire.

3.4 Data Collection Procedures

This study employed a multi-faceted approach to gather data on the implementation of CBA in private TVET colleges. A five-point Likert scale questionnaire served as the primary data collection tool. The questionnaire was made available in both English and Amharic, depending on the respondents' comfort and proficiency with English. Each participant received the questionnaire in person at their respective college or workplace. Following the analysis

of the questionnaire data, interviews and document analysis were conducted with the participants. They were assured that their responses would remain confidential and would be used exclusively for this research.

3.5 Data Analysis

In the initial phase of the study on the implementation of quality principles in CBA, a five-point Likert scale was used, where one indicated "strongly disagree" and five indicated "strongly agree." This scale was employed to assess the implementation of quality principles in CBA. The collected data were entered into a computer and analyzed using SPSS version 26 for Windows. A total of 873 students and 189 teachers participated in the questionnaire, contributing to the quantitative aspect of the study. Descriptive analysis and one-sample t-tests were conducted to examine the results related to each of the nine quality principles of CBA implementation. Additionally, the Mann-Whitney U test was used to compare responses between teachers and students regarding these quality principles. Furthermore, logistic regression analyses were employed to understand the impact of CBA quality principles on students' competence, considering categorical variables based on the results from students in the IOCA, NOCA, and ROCA assessments. After analyzing the questionnaire data, interviews were conducted with five teachers, four assessors, five students, two deans, and one assessment center coordinator. The document analysis was also performed. For the analysis of the interview data and the documents, thematic and content analyses were applied. Throughout the analysis process, cases with missing values were excluded to ensure that only reliable data were utilized in the study.

4. Result

4.1. Demographic Characteristics of Participants

Table 1 presents the demographic characteristics of the participants, including their sex, college affiliation, and roles. The total number of participants was 1,062, comprising 873 students (82.2%), 147 teachers (13.8%), and 42 assessors (4.0%). Among the participants, 45.8% were male and 54.2% were female. The distribution across colleges was College A had 516 participants (48.6%), College B had 267 participants (25.1%), College C had 137 participants (12.9%), College D had 100 participants (9.4%), and 42 participants (3.9%) were from various industries.

Table 1. Demographic Characteristics of Participants

College Name	Roles of the participants						Total
	Teachers		Students		Assessors		
	Male	Female	Male	Female	Male	Female	
A	54	12	139	311	0.00	0.00	516
B	21	0.00	114	132	0.00	0.00	267
C	18	9	53	57	0.00	0.00	137
D	33	0.00	21	46	0.00	0.00	100
Industries	0.00	0.00	0.00	0.00	33	9	42
Total	126	21	327	546	33	9	1062

4.2 Implementation of Quality Principles of CBA

This section addresses the implementation of quality principles in Competence-Based Assessment (CBA) and is divided into nine sub-groups, each corresponding to a specific quality dimension. To evaluate these dimensions, responses from teachers and students were collected using a five-point Likert scale, ranging from ‘strongly disagree’ to ‘strongly agree,’ to gauge the perceived strength of the implementation of these quality principles. A t-test was conducted to analyze the data, and the results are presented in Table 2.

As indicated in Table 2, the results of a one-sample t-test revealed that the mean value of content validity quality principles was significantly lower than the mean test value ($M= 13.86$, $SD = 3.49$, $t = -6.27$, $P < .001$). Similarly, the mean value of reliability quality principles of CBA implementation was significantly lower than the mean test value ($M= 11.83$, $SD = 4.62$, $t = -43.11$, $p < .001$). In the same way, the mean value of the implementation of quality principles of washback in a CBA was found to be significantly lower than the mean test value ($M= 8.95$, $SD = 4.82$, $t = -41.79$, $p < .001$). Unlikely, the mean value of the implementation quality principles of construct validity in a CBA was not significantly different from the mean test value ($M 8.95$, $SD = 2.90$, $t = .558$, $P>.05$).

Table 2. The Implementation of Quality Principles CBA

Quality dimension	Mean	SD	Test value	T-test	Sig
Content validity	13.86	3.49	15	-6.273	.001
Reliability	11.83	4.62	18	-43.155	.001
Washback	8.96	4.82	15	-41.792	.001
Construct validity	8.95	2.90	9	.558	.577
Sufficiency	10.77	2.84	12	-13.57	.001
Feedback	16.57	4.60	18	-10.103	.001
Currency and authenticity	14.06	3.70	15	-8.271	.001
Fair and flexible	5.40	2.31	9	-50.74	.001
Meaningfulness and discriminant	8.13	2.14	9	-13.19	.001
Total	96.18	19.00	120	-40.839	.001

N = 1062, correlation is significant at .001

In the other case, the mean value of the implementation of quality principles of sufficiency in a CBA was significantly lower than the mean test value (M= 10.77, SD = 2.84, t = -13.57, $p < .001$). Consistently, the mean value of the implementation of quality principles of feedback in a CBA was significantly lower than the mean test value (M= 16.57, SD = 4.60, t = -10.103, $p < .001$). The mean value of the implementation of quality principles of currency and authenticity in a CBA was significantly lower than the mean test value (M= 14.06, SD = 3.70, t = -8.27, $p < .001$). Consistently, the mean value of the implementation of quality principles of fairness and flexibility in a CBA was significantly lower than the mean test value (M= 5.40, SD = 2.31, t = -50.74, $p < .001$). The mean value of the implementation of quality principles of meaningfulness and discriminant in a CBA was significantly lower than the mean test value (M= 8.13, SD = 2.14, t = -13.19, $p < .001$). At last, the mean value of the overall cumulative implementation quality principles of CBA was significantly lower than the mean test value (M= 96.18, SD = 19.00, t = -40.84, $P < .001$). This shows that the implementation of CBA in private TVET colleges is at a lower level.

4.3 Comparative Analysis of Responses to the Implementation of CBA

The study employed the Mann-Whitney U Test to examine whether statistically significant differences exist in the opinions of students and teachers within TVET institutions regarding the implementation of quality principles of CBA. The Mann-Whitney U test was chosen for evaluating differences in responses between two independent groups on a continuous measure, serving as a non-parametric alternative to the t-test for independent samples. Key indicators in the Mann-Whitney U test include the Z value and the significance level (Pallant, 2007).

Table 3. Comparison of Participants Response on Implementation (N= 1062)

Status of Responders	N	Mean Rank	Mann Whitney Test	Z	Asymp.Sig (2tailed).
Students	873	548.80	79 229.500	-. 855	.392
Teachers	189	527.76			
Total	1062				

As depicted in Table 3, the test's z-value is -. 855 with a p-value of 0. 392 Since the probability value (p) exceeds 0.05, the result is deemed not statistically significant. This suggests that there is no significant difference in the responses between teachers and students concerning the implementation of quality principles of CBA.

4.4 The Implementation of CBA as a Determinant of Students' Competence in the IOCA, NOCA and ROCA

The implementation of quality principles of CBA as a determinant of students' competence in the categorical variables of students' competence in IOCA, NOCA, and ROCA were analyzed using binary logistic regression. This analysis aimed to identify the key independent variables within the implementation of quality principles of CBA that serve as major predictors of students' competence in IOCA, NOCA, and ROCA.

4.4.1 The Implementation of CBA as a Determinant of Students' Competence in the IOCA

Table 4. The Implementation of CBA as a Determinant of Students' Competence in the IOCA

Quality dimension	B	S.E.	Wald	df	Sig	Exp(B)
Content validity	-.267	.170	2.479	1	.115	.766
Reliability	.034	.111	.095	1	.757	1.035
Washback	-.016	.083	.040	1	.842	.984
Construct validity	-.158	.171	.846	1	.358	.854
Sufficiency	.084	.162	.268	1	.605	1.087
Feedback	.114	.121	.892	1	.345	1.121
Currency and authenticity	.157	.114	1.876	1	.171	1.170
Fair and flexible	.225	.270	.696	1	.404	1.252
Meaningfulness and discriminant	.066	.213	.096	1	.756	1.068
Constant	3.417	2.339	2.134	1	.144	30.469

N = 873, correlation is significant at .001

4.4.2 The implementation of CBA as a determinant of students' competence in the NOCA

Table 5. The Implementation of CBA as a Determinant of Students' Competence in the NOCA

Quality dimension	B	S.E.	Wald	df	Sig	Exp(B)
Content validity	.017	.040	.187	1	.665	1.017
Reliability	.034	.024	2.109	1	.146	1.035
Washback	-.019	.020	.913	1	.339	.981
Construct validity	.016	.039	.175	1	.676	1.016
Sufficiency	.047	.042	1.249	1	.264	1.048
Feedback	-.034	.030	1.336	1	.248	.966
Currency and authenticity	-.050	.032	2.375	1	.123	.951
Fair and flexible	.014	.047	.088	1	.766	1.014
Meaningfulness and discriminant	.011	.054	.040	1	.841	1.011
Constant	-1.477	.476	9.621	1	.002	.228

N = 873, correlation is significant at .001

4.4.3 The implementation of CBA as a determinant of students' competence in the ROCA

Table 6. The Implementation of CBA as a Determinant of Students' Competence in the ROCA

Quality dimension	B	S.E.	Wald	df	Sig	Exp(B)
Content validity	.120	.071	2.837	1	.092	1.128
Reliability	.008	.039	.044	1	.834	1.008
Washback	-.004	.032	.018	1	.892	.996
Construct validity	.113	.069	2.700	1	.100	1.120
Sufficiency	.018	.070	.069	1	.793	1.018
Feedback	-.042	.050	.696	1	.404	.959
Currency and authenticity	-.074	.051	2.130	1	.144	.928
Fair and flexible	.001	.077	.000	1	.991	1.001
Meaningfulness and discriminant	-.007	.089	.007	1	.935	.993
Constant	-4.001	.915	19.132	1	.000	.018

N = 873, correlation is significant at .001

As depicted in Tables 3, 4, and 5, binary logistic regression was employed to identify the variables within the category of implementing CBA in a private TVET college that substantially influences the competence of students (competent and not yet competent). Among the 9 independent factors considered in the implementation of quality principles of CBA, no one had a statistically significant relationship with predicting the competence of students in IOCA, NOCA, and ROCA.

4.5 Interview Results

The interview findings provide critical insights into the implementation of CBA in private TVET colleges. Participants included deans, teachers, students, assessors, and assessment coordinators. The issues identified revolve around key quality principles: cost, fairness, reliability, validity, sufficiency, meaningfulness, objectivity, feedback, and washback. These insights are valuable for enhancing the CBA process within these institutions.

The interview respondents were asked to evaluate the implementation of the quality principles of CBA.

4.5.1 Cost-Effectiveness of Assessment

Respondents noted that private TVET colleges consistently strive to minimize assessment costs. However, the fees charged for assessments are often unreasonable, compromising assessment quality. Insufficient funding for assessor fees and assessment materials delays the timely completion of assessments, resulting in significant time wastage for both candidates and assessors.

One respondent explained "*The financial practices of private TVET colleges prioritize reducing assessment costs to lower overall expenses related to teaching and learning. This cost-cutting approach often involves shortening course hours, limiting in-company training opportunities, and neglecting to provide adequate teaching materials for practical learning and assessment. Furthermore, these colleges frequently fail to assign qualified personnel for assessments, undermining the validity and reliability of the evaluations".*

4.5.2 Authenticity, Fairness, Flexibility, Meaningfulness, and Discrimination in Assessment

Interview responses indicated that conducting fair and flexible assessments in private TVET institutions poses significant challenges. The assessment and certification system are becoming increasingly complex, with issues such as deviations from prescribed practices, unethical behavior by some assessors, and interference from training regulators. The implementation of the NOCA is hindered by interference of AOCACA supervisor discrepancies between private and public institutions. Additionally, gaps in institutional capacity—such as a lack of tools, equipment, and coordination among supervisors—further compromise assessment quality. Other issues, including interference from training colleges, the proliferation of forged certificates, and rent-seeking attitudes, contribute to systemic inefficiencies.

One respondent highlighted the considerable challenges associated with fair and flexible assessment practices in CBA.

"College facilities are often inaccessible to disadvantaged groups, and training materials do not accommodate the diverse characteristics of learners. For instance, there are no left-handed armchairs for left-handed students, and many teachers lack the knowledge to support exceptional learners effectively. Some educators equate fair and flexible assessment with treating all students equally, regardless of their individual needs or competencies. While many teachers aspire to implement fair practices, various obstacles hinder their efforts and some exhibit resistance to these assessments. Overall, the capacity and understanding of teachers regarding fair practices are critical factors contributing to inadequate implementation".

Most interview respondents expressed concerns that current CBAs are neither valid nor authentic, citing the prevalence of cheating and note-sharing among students. Group assessment techniques are employed across all classes, with no systems in place to prevent academic dishonesty. With more than 60 students being examined in a single classroom by one teacher, many scores are based on group projects rather than mechanisms that accurately assess individual competency. One respondent reinforced this concern, stating, "In my view, the current competency-based assessments do not accurately measure student performance. While students may disengage during the teaching process, they become active participants during assessments, often resorting to unethical practices. Additionally, disruptive and dishonest behavior from candidates, such as aggression, verbal abuse, and threats directed at assessors, poses a significant issue."

Most respondents agreed that the current CBA struggles to accurately identify competent and non-competent students. Assessments often prioritize group assignments over individual work, resulting in all students receiving the same score for the IOCA, which fails to distinguish between students' competencies in private TVET colleges.

Consequently, the discriminatory power of assessments is diminished. The culture within private TVET institutions, characterized by cheating and note-sharing during assessments, adversely affects trainees' competency during the NOCA and ROCA.

4.5.3 Validity, Reliability, Objectivity, and Sufficiency of Assessment

According to the quality principles of CBA, validity is crucial for assessments; however, establishing it in qualitative research remains challenging. Even when qualitative measures are employed, they must be evaluated through the lens of reliability and validity to ensure the trustworthiness of the results. Teachers should assess the validity of their evaluations against predetermined standards to ensure effective preparation. Unfortunately, respondents indicated that these principles were not consistently applied during assessments, ultimately impacting students' competence in IOCA, NOCA, and ROCA. The CBA system in Ethiopian TVET institutions, aimed at equipping individuals with standardized skills and knowledge for the global job market, faces significant implementation challenges. Poor CBA practices, characterized by assessments that do not align with intended procedures, result in limited predictive power regarding trainees' competence. Additionally, the low absorption rate of TVET graduates into the job market can be attributed to inadequate assessment methods, subpar training quality, and a preference for graduates from traditional programs.

While the objective of assessment is to prepare competent graduates for both global and local employment, interviewees claimed that current assessments in private TVET colleges lack objectivity. Graduates often do not possess the necessary skills for NOCA, ROCA, and industry-specific assessments. Many firms prefer hiring workers who have completed three to six months of training programs in China over Ethiopian TVET graduates. Most respondents believed that teachers typically relied on knowledge tests rather than considering practical skills and attitudes when evaluating students' competence.

4.5.4 Appropriateness of Assessment Feedback

Most interview respondents indicated that both teachers and students fail to recognize the importance of feedback and are largely unaware of its value. Due to a lack of understanding of CBA and feedback concepts, teachers often use feedback to undermine students. Students interpret teachers' criticisms as discouraging and may react violently if they associate the assessment feedback on their tuition with academic privileges. Consequently, these negative interactions impact the overall competency of trainees during IOCA, NOCA, and ROCA.

4.5.5 Influence of Assessment on Student Learning

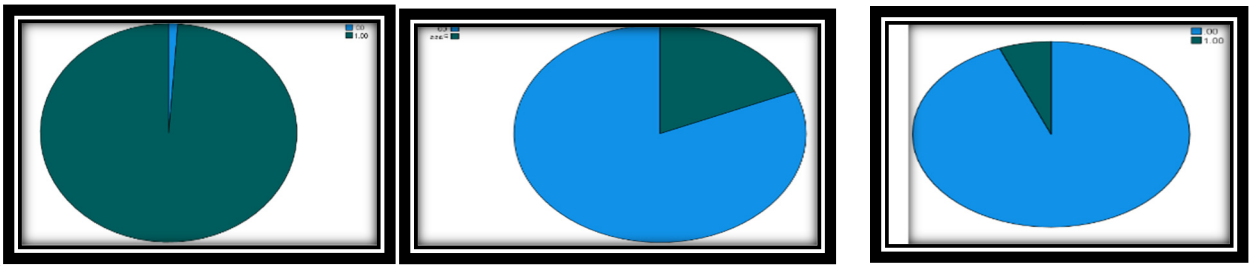
Interview respondents unanimously agreed that the current IOCA negatively impacts both teaching and learning, discouraging student attendance. During class and study periods, students demonstrate a lack of motivation to learn, resulting in poor performance on both the NOCA and ROCA assessments. Furthermore, respondents confirmed that the existing CBA framework in private TVET colleges significantly affects students' competence. Most colleges graduated all admitted students, except in cases of natural death or voluntary withdrawal, and the grading system simplifies student evaluation into "competent" or "not yet competent. This leads teachers to classify all students as competent, which results in no repercussions for poor performance in class or assessments. Consequently, many students lack the motivation to engage in the learning process.

Additionally, numerous students struggle due to gaps in their foundational knowledge, difficulties with the instructional language, and insufficient prerequisite knowledge necessary for advancement. Overall, respondents indicated that the implementation of quality principles in CBA assessment is inadequate, contributing to lower levels of student competence. Many graduates are perceived as not competent in both local and global job markets. Moreover, current CBA assessments often fail to uphold the quality principles they were designed to support, frequently misidentifying students and inaccurately classifying those who are not competent as competent, and vice versa.

4.6 Document Analysis

The document used for this study focuses on the competence of private TVET college students in IOCA, NOCA, and ROCA, and monthly feedback on AOCACA regarding barriers to NOCA. According to the findings, most students exhibit a notable lack of competence in NOCA and ROCA compared to IOCA. Out of 873 students, 863 (98.9 %) demonstrated competence in IOCA, while only 163 (18.7%) showed competence in NOCA, and just 50 (5.7%) in ROCA. This discrepancy suggests that the assessments may not accurately reflect the students' true competencies. Several factors contribute to this variation, including the proficiency of teachers and assessors, the quality of assessment tools, and the student's preparedness for evaluations. The CBA system in Ethiopian TVET institutions aims to equip individuals with standardized skills and knowledge for the workforce; however, it faces significant

implementation challenges. The ineffective application of CBA is characterized by assessments that do not adhere to established procedures, leading to a limited ability to measure students' competencies accurately. Furthermore, the low job market absorption rate for TVET graduates can be attributed to inadequate assessment methods, subpar training quality, and a preference for graduates from traditional programs.



IOCA competent and Not yet competent students

NOCA competent and Not yet competent students

ROCA competent and Not yet competent students

key: competent students

not competent students

Figure 1.

Table 7. Number of Competent and Not Yet Competent Students

	N	Competent	%	Not yet competent	%
IOCA	873	863	98.86	10	1.14
NOCA	873	163	18.67	710	81.33
ROCA	873	53	6.07	820	93.93

Many students experience significant anxiety before and during assessments, viewing them as critical, life-defining events. Students who lack the necessary competencies may struggle with basic tasks, such as accurately stating their names, and may resort to inappropriate behaviors, including evaluating peers, altering identification documents, or using unauthorized materials. Reports of harassment towards assessors, tampering with assessment materials, and rejecting feedback have also surfaced. Current assessment practices largely depend on traditional methods like objective exams, and homework, with limited incorporation of alternative techniques such as skilled-based assessment one-minute tests, group projects, and self or peer assessments. This lack of variety further undermines the effectiveness of the CBA system. Implementation challenges are exacerbated by inadequate continuous assessment practices, unclear guidelines, insufficient teacher training, large class sizes, and poor infrastructure and resources.

The challenges in implementing an effective CBA system stem from the substantial time and effort required for standardizing practical assessments. The complexities of the assessment and certification process are exacerbated by deviations from established practices, unethical behavior among some assessors, and interference from training regulators. The adoption of AOCACA assessments encounters obstacles such as unethical conduct by assessors and inconsistencies in assessment questions between private and public institutions. Additionally, disruptive behaviors from candidates, including aggression and threats towards assessors, further complicate matters. Gaps in institutional capacity—such as insufficient tools and equipment, along with poor coordination among supervisors—hinder assessment quality. Other issues, including interference from training colleges, an increase in forged certificates, and rent-seeking behaviors, contribute to systemic inefficiencies. Limited access to assessment services, deficiencies in assessor training, and negative attitudes towards competency-based assessment represent significant hurdles that need to be addressed (Baraki, 2016).

5. Discussion

This study assesses the implementation of CBA in private TVET colleges in the Amhara Regional State of Ethiopia. The study evaluates assessment quality based on nine principles: cost-effectiveness, fairness, currency, reliability,

sufficiency, validity, meaningfulness, objectivity, feedback, and washback. The findings revealed that deficiencies across all these quality principles, hinder the ability to distinguish between competent and not-yet-competent students. The study concludes that the implementation of CBA quality principles in private TVET colleges in the Amhara Regional State is low across nine categories. These findings align with previous research on the implementation of continuous assessment, modular instructional assessment, and CBA (Abejehu, 2016; Baraki et al., 2016; Hailu et al., 2014; Logaw, 2015; Palgo, 2013; Yigzaw, 2013). Similarly, there were no significant differences between teachers' and students' opinions regarding CBA implementation. The deficiencies observed in the opinions of both teachers and students are consistent with prior research on assessment (Brown, 2022; Mussawy et al., 2021; Tolesa, 2019).

The qualitative finding indicates that private TVET institutions exhibit low implementation of CBA, which results in diminished student competence. This finding is consistent with earlier research (Petra et al., 2020). Furthermore, there is a relation between the implementation of CBA and students' competence, aligning with prior research (Linn, 2008). Given the crucial role of assessment in the teaching and learning process, all types of assessments must adhere to basic assessment principles. The qualitative aspect of the study supports the quantitative findings, revealing that the current implementation of CBA is linked to decreased student motivation and engagement, increased absenteeism, and negative impacts on student competence. This study corroborates previous research by various authors, including Açıkgöz & Babadoğan (2021), Andrade (2019), Baartman et al. (2007), Baraki et al. (2016), Hattie & Timper (2007), Joroenson (2020), Maclarty & Garertner (2015), Madni (2015), Mastuuzka (2020), Skorupiński (2015), Popham (2013), and Yan (2022).

Document analysis revealed that while students perform well in the IOCA with a pass rate of 99.2%, they encounter significant challenges in the NOCA, which has a pass rate of only 18.7%, and the Remote ROCA, with a pass rate of just 5.7%. This disparity has led to dissatisfaction among employers regarding recent graduates. These findings are consistent with persistently low passing rates in the Ethiopian General Secondary Education Certificate Examination, which stood at 4.1% in 2023 (NEAEA, 2023) and 5.4% in 2024 (Ethiopian Monitor, 2024). Additionally, the pass rate for the Ethiopian private higher education exit exam is reported to be only 13% (Ethernet, 2024). Although these students demonstrated competence in high school, they failed to replicate this proficiency in subsequent assessments.

This inconsistency suggests that the assessments lack validity, reliability, or alignment with the quality principles of CBA. Several issues hinder assessment quality, including teachers' inadequate assessment literacy, which aligns with prior findings (Mellati & Khademi, 2018) indicating that teachers' assessment literacy significantly impacts students' academic performance. Other contributing factors include unethical behavior among teachers, lower competence levels due to students' backgrounds, and insufficient emphasis on assessment within colleges. The current implementation of quality principles in CBA has led to misinterpretations and difficulties in distinguishing between competent and not-yet-competent students. Logistic regression results indicate a low correlation between the implementation of quality principles and students' competence. This suggests that the inadequate implementation of CBA quality principles in private TVET colleges negatively affects the accuracy of assessments, allowing non-competent students to pass while competent students may fail.

6. Conclusion and Recommendation

The study concludes that the implementation of CBA principles in private TVET colleges in the Amhara Regional State is inadequate across nine categories, with no significant difference in perspectives between teachers and students on these quality principles of assessment. This lack of effective CBA implementation hampers the understanding of how students' perspectives relate to their competencies. Key challenges identified compromising assessment quality, including unethical interference of regulatory body and colleges, insufficient teachers' assessment literacy, unethical behavior among teachers and assessors, weak educational backgrounds, and misconduct among students. Additionally, the study emphasizes the need for ethical and assessment literacy among teachers, college leaders, and regulatory bodies, as these factors collectively undermine the effectiveness of the assessment process and the ability to measure students' competencies accurately.

To improve the quality of CBA the study recommends that the AETB provide training on assessment principles and require licensure for teachers and assessors before their assignment to institutions. This will ensure they are well-equipped to evaluate student competencies effectively. It is also important to foster a positive attitude toward CBA among teachers and students. Implementing standardized tools for IOCA, NOCA, and ROCA is necessary to ensure consistency and fairness across colleges and institutions. It is also critical to establish a clear distinction between teachers, assessment tool developers, and assessors, positioning them in separate environments to maintain

an unbiased evaluation process within CBA frameworks. Additionally, pre-service and in-service training, and ongoing professional development, are vital for teachers in private TVET colleges to acquire the skills necessary for effective student assessment. Furthermore, conducting placement assessments for students will help ensure that competent individuals are selected for teaching and learning processes within CBA contexts.

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Appendix

Quality principles of competence-based assessment

A questionnaire to be filling by teachers

General Direction to the Respondents

The objective of this questionnaire is to assess the practice of basic principles of in competency-based assessment. The information gathered will be confidential and will not be used for any other purpose than the study. I guarantee that your response will remain confidential and be used for this research purposes only. It is the cooperation of all the respondents to answer the questions carefully and honestly that makes the study effective and meaningful. Therefore, you are kindly requested to provide the necessary information that is very helpful for the quality of the study.

Thank you

A. Background information

Instruction: - Please, complete the blank with the information that correspond to your

Background

Name of institute/college you teach in_____

Sex_____

Age_____

Department_____

level_____

To assess the practice of basic principles of competence-based assessment, a 5-Scale Likart scale will be used. Scores will be assigned on a range from 1 to 5, where 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree. Please read each of the items carefully and indicate by marking "√" the rating that you think corresponds to the practice of basic principles of competence-based assessment on your assessment.

No	Essential characteristics	Institutional				
	Content Validity factor 1					
1	The content of the assessment appears to be suitable to its aims	58				
2	The assessment is a representative behavior of each unit of competence in the course.	59				
3	Assessment covers the breadth and depth of the unit of competency	57				
4	The assessment is a representative behavior of each unit of competence in the course.	56				
5	The assessment of student competence is crucial in measuring the intended competencies.	43				
	Reliability factor 2					
6	The assessment will provide similar outcomes for candidates with equal competence the same assessment to the same group of participants at an administration of two different places.	22				
7	The assessment will provide similar outcomes for candidates with equal competence the same assessment to the same group of participants at an administration of two different time interval.	21				
8	The assessment will provide similar outcomes for candidates with equal competence the same assessment to the same group of participants at an administration of different assessment methods.	23				
9	The assessment will provide similar outcomes for candidates with equal competence the same assessment to the same group of participants at an administration of different assessors.	24				
10	The assessment will provide similar outcomes for candidates with equal competence the same assessment to the same group of participants at an administration of two different instruments of different versions of the instruments.	20				
11	Assessors' make consistent decisions' over time and different candidates.	25				
	Wash Back factor 3					
12	Assessment impacts on trainees' motivation to learn.	63				
13	Assessment impacts on trainees' learning style.	62				
14	Assessment impacts on trainees' competence.	64				
15	Assessment impacts on trainees' learning strategies.	61				
16	Assessment influences teaching and learning.	60				
	Cost-effective factor 4					
18	The assessment has an efficient payment system to support assessors.	4				
19	The assessment has an efficient payment system to support staff.	5				
	Construct Validity factor 5					
22	Assessment is accurate.	30				
23	The assessment is consistent in providing timely information on tasks and procedures.	31				
24	Assessment methods and instruments align with the specific purposes and industry requirements	29				

	Objectivity factor 6					
20	The assessment approach can be adapted to meet the needs of all candidates	13				
21	The assessment approach can be adapted to meet the needs of work place	12				
	Time -effective factor 7					
29	The assessment is efficient in using assessors' time.	3				
30	The assessment is efficient in using candidates' time.	2				
	Sufficiency factor 8					
36	Different sources of evidence of knowledge and skills relates directly to the units of competence, or learning outcomes, being assessed.	37				
35	Assessment covers all required competencies and enables learners to develop various competences.	36				
38	The instruments assess the candidate's ability to meet the level of performance required by the unit(s) of competency.	38				
39	The assessment tasks have been designed to allow holistic and integrated assessment of knowledge, skills and attitudes.	39				
	Feedback factor 9					
31	Assessors' feedback is honest.	49				
32	Assessors' feedback is specific.	50				
33	Assessors' feedback is meaningful.	48				
34	Assessors' feedback aligns with the objectives of assessment	51				
35	Assessors manage emotions and show respect when providing feedback	54				
36	Assessors' feedback is timely	42				
	Currency and Authenticity factor 11					
37	The assessment is reflecting the learner's current competence.	15				
38	The learner can meet the requirements of the current version of the relevant unit of competence.	16				
39	Assessment is really the work of the trainee/candidate.	17				
40	Assessors' discourage inappropriate assessment practice	7				
41	The assessment system is transparent.	6				
	Fair and Flexible factor 13					
42	The assessment system is considered to disadvantage trainees or candidates.	10				
43	Where practical appropriate assessment will be negotiated and agreed between the assessor and the candidates.	14				
44	The system of assessment is treating all individuals the same way and providing an equal opportunity to the candidates in the assessment process.	27				
	Meaningful Discriminant factor 14					
45	Assessment instruments prepared according to the specific purpose in order to ensure that they measure what they are intended to measure.	33				
46	Teachers (assessors) are skilled to perform the necessary assessment method to discriminate competent and not yet competent respondents.	45				
47	Candidates will be given clear and timely information on assessment.	8				

Interview Protocol

1. What is your understanding of the basic principle of competence-based assessment?
2. How do you ensure that the assessment is aligned with the learning outcomes?
3. How much the assessment cost effective in terms of time, labor and money?
4. What are the key competencies required for the assessment?

5. How do you ensure that the assessment is fair and unbiased?
6. What are the challenges you have faced while conducting competence-based assessments?
7. How do you ensure that the assessment is valid and reliable?
8. How do you provide feedback to the candidates after the assessment?
9. How do you ensure that the assessment is consistent across all candidates?
10. What kinds of assessment strategies are essential for improving the practice of basic principle of competency-based assessment and students' competence?
11. In what ways does the practice of basic principles of competency-based assessment affect students' competence?
12. Is there anything else you would like to say?

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.