

# Enhancing Critical Thinking Abilities of Secondary School Students Using Competence-Based Approach in Teaching Productive Skills in Mezam Division

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## Abstract

This study investigates the effect of integrating a Competence-Based Approach (CBA) in teaching productive skills on the critical thinking abilities of secondary school students in Mezam Division, Cameroon. A mixed-methods research design was employed, combining quantitative and qualitative approaches to examine both performance outcomes and contextual factors influencing learning. The study involved 86 Form Three students from two public secondary schools, alongside 10 English teachers. Data were collected through pre- and post-tests and an observation checklist. Quantitative analyses, including ANCOVA, measured the impact of CBA on critical thinking, while qualitative data explored students' and teachers' experiences. Findings revealed that students in the CBA group achieved a mean post-test score of 99.62 (SD = 5.99), significantly higher than the control group's 89.75 (SD = 4.92), representing a mean gain of 20.43 versus 7.43 in the traditional instruction group. Although female students in the experimental group performed slightly better (M = 101.54, SD = 5.86) than males (M = 97.70, SD = 6.04), ANCOVA results showed no significant interaction effect between teaching method and gender (F = 1.624, p = .201). Observations corroborated these findings, indicating improved analytical, evaluative, and argumentative skills in students exposed to CBA. The study underscores that instructional strategy, rather than gender, is the primary determinant of critical thinking development, highlighting the value of inquiry-driven, student-centered pedagogies in enhancing higher-order cognitive skills.

**Keywords:** Competence-Based Approach, Productive Skills, critical thinking, student-centered pedagogies, student outcomes, secondary school, English language.

## Introduction

As education systems respond to the demands of the 21st century, critical thinking has emerged as a foundational skill for navigating complex global challenges. Institutions increasingly adopt innovative, learner-centered approaches to develop the '4Cs' creativity, communication, critical thinking, and collaboration viewed as

essential for preparing students for life and work in the era of the Fourth Industrial Revolution (Boleng et al., 2017; Wilson & Narasuman, 2020; Wahyuddin, 2022). Frameworks such as the Partnership for 21st Century Skills (Battelle for Kids, 2016) emphasise the integration of these competencies into instructional design to foster adaptability and innovation among learners

(Benek, 2022; Cyprian, 2014). Traditional methods increasingly fall short in promoting these competencies. Contemporary education instead emphasises inquiry, autonomy, and ongoing reflection, particularly relevant in contexts like English as a Foreign Language (EFL) and social studies, where critical literacy and civic engagement are paramount (Patel, 2013; Levine, 2010). Scholars argue for intentional teaching of critical thinking through diverse strategies, urging a shift from rote learning toward practices that cultivate lifelong learning and social responsibility (Renaud & Murray, 2008; Tsui, 2002; Mitra, 2012).

In line with global trends, Cameroon's education reforms including the Competence-Based Approach (CBA) aligns with frameworks such as Education for All and SDG 4. Anchored in national policies like the Growth and Employment Strategy Paper (2010), the transition from Objective-Based to Competence-Based curricula reflects a commitment to developing analytical, communicative, and ICT-related skills. The Ministry of Secondary Education's 2012-2015 curriculum reform institutionalised CBA to foster learner autonomy, adaptability, and critical engagement in a rapidly evolving world. This study examines the effectiveness of the Competency-Based Approach (CBA) in fostering critical thinking through the teaching of productive language skills in Mezam Division. It further explores how CBA contributes to achieving Cameroon's Vision 2035 and advancing Sustainable Development Goals 4, 11, 13, 15, and 16, in comparison to conventional pedagogical methods.

## Background to the Study

Historically, concept of critical thinking has deep philosophical roots stretching back to classical antiquity. It draws its lineage from Socratic inquiry, where questioning was used to test assumptions, Aristotelian logic, which emphasized systematic reasoning, and Enlightenment rationalism, which championed evidence-based judgment over dogma. These traditions provided

the intellectual foundation for rational discourse and reflective analysis as core elements of human development. In the early 20th century, John Dewey's pragmatism and experiential education reframed critical thinking as reflective judgment, positioning it as an essential element of democratic citizenship, problem-solving, and lifelong learning. Dewey argued that education should develop the ability to think critically rather than merely memorize facts, a vision now echoed in modern competency-based curricula. Today, this philosophical heritage underpins pedagogical approaches that seek to integrate reasoning, reflection, and real-world application across all disciplines, particularly in language education where communication and analytical depth intersect.

The Competence-Based Approach (CBA) also follows a distinct historical trajectory as a response to changing educational and economic needs. Emerging in the United States during the 1970s, CBA was initially used in vocational and professional training to emphasize measurable outcomes, practical skills, and context-specific performance (Wolf, 2001; Richards & Rogers, 2001). By the late 20th century, globalization and economic restructuring prompted Europe, Asia, and Africa to adopt similar approaches to better prepare learners for the labor market and civic participation. Cameroon formally embraced CBA following recommendations of the 2002 National Education Seminar, integrating it progressively into primary and secondary curricula from 2012 onward. This reform marked a shift from Objective-Based Teaching (OBT), which prioritized content coverage, to a competency-driven paradigm that seeks to develop learners who can apply knowledge creatively in solving real-life problems. Thus, the global historical evolution of CBA aligns with a broader educational movement toward fostering higher-order thinking skills, adaptability, and lifelong learning capabilities.

Conceptually, critical thinking is widely defined as the ability to analyze, evaluate, and synthesize information to make reasoned decisions and solve

complex problems (Facione, 2011). Within English Language Teaching (ELT), critical thinking is particularly relevant to productive language skills, speaking and writing, because it enables learners to organize ideas coherently, question assumptions, express opinions persuasively, and communicate effectively in authentic contexts. When these higher-order cognitive processes are cultivated, language instruction becomes more than an exercise in grammar and vocabulary; it becomes a platform for intellectual development and civic engagement.

The Competence-Based Approach (CBA) provides a robust pedagogical framework for fostering these abilities by integrating knowledge, skills, and attitudes into meaningful, real-life performance tasks. Unlike content-driven approaches, CBA emphasizes observable competencies and learner autonomy, aligning instruction with practical applications and authentic assessment methods (Garavan & McGuire, 2001; Guthrie & Seifert, 2015). Scholars such as Nkwentisama (2012) and Pellegrino et al. (2012) argue that CBA bridges the gap between formal schooling and societal demands by positioning teachers as facilitators who design inquiry-driven, collaborative, and problem-based tasks. Despite these conceptual strengths, Cameroon's implementation of CBA has been hindered by inadequate teacher preparation, scarcity of resources, and inconsistent assessment practices (Nkengim, 2016).

In Cameroon, recent national examination outcomes indicate deepening challenges in educational outcomes, evidence that policy reforms have yet to fully realize their intended impact. Between 2021 and 2024, the pass rate for secondary school national examinations dropped from 65% to just 37%, a trend described by the Minister of Secondary Education as an “unprecedented educational crisis.” Factors cited include declining student commitment, distractions, peer pressure, and broader social disruptions, highlighting the urgent need to reassess instructional strategies and educational

support systems (The National Post, 2024). This sharp decline in performance underscores persistent gaps between education policies, such as the 2013 revision of the GTTC (Government Teacher Training College) curriculum aiming to cultivate reflective, competency-based practitioners, and real-world classroom realities where implementation remains incomplete. In the face of such systemic obstacles, it is critical to pursue empirical research that evaluates how educational innovations like the Competence-Based Approach (CBA) can genuinely enhance students' critical thinking skills, particularly through productive language tasks.

Theoretically, this study is anchored in two complementary theoretical perspectives that support competence-based instruction. The first is Vygotsky's Social Constructivism (1978), which conceptualizes learning as a socially mediated process facilitated through dialogue, scaffolding, and collaborative knowledge construction. According to this theory, learners build understanding within their Zone of Proximal Development (ZPD), where teachers guide and co-create meaning with students rather than simply transmit information. In the context of CBA, this framework positions educators as facilitators who create interactive environments that nurture critical thinking and problem-solving skills through purposeful engagement and contextualized tasks.

The second theoretical foundation is Krashen's Comprehensible Input Hypothesis (1982), which emphasizes the role of meaningful, slightly challenging input in second language acquisition. This theory asserts that learners acquire language most effectively when they are exposed to understandable messages just beyond their current proficiency level, provided in an emotionally supportive environment. When integrated into CBA, Krashen's hypothesis encourages authentic communication, learner-centered tasks, and gradual mastery of both linguistic proficiency and higher-order thinking. Together, these theoretical models affirm the value of dialogic, inquiry-based, and student-centered pedagogy that aligns

naturally with the principles of competence-based education. They provide a solid rationale for why instructional strategies grounded in CBA can enhance both language skills and critical reasoning among secondary school students.

Contextually, Cameroon's Mezam Division, secondary education unfolds within a multilingual and multicultural setting where English is taught either as a second or foreign language. Teachers operate in classrooms often characterized by large student populations, limited instructional resources, and an examination-oriented culture that prioritizes memorization over critical inquiry. Although national policy strongly supports the implementation of CBA, research indicates that teachers frequently lack the pedagogical clarity, assessment tools, and classroom strategies required for effective delivery (Rutayuga, 2014; Nkwentisama, 2012). These systemic challenges frequently lead educators to revert to traditional teacher-centered methods, undermining the goals of the competence-based curriculum.

In addition, productive language skills such as speaking and writing are often overshadowed by receptive skills like reading and listening, despite their crucial role in developing learners' analytical abilities, communicative competence, and capacity for lifelong learning. This imbalance limits students' opportunities to practice higher-order thinking in language use, leaving them less prepared to meet the demands of Cameroon's Vision 2035 and Sustainable Development Goal 4, which call for an education system that produces skilled, reflective, and adaptable citizens. Addressing these contextual gaps requires focused research on how CBA can enhance critical thinking specifically through productive language skills, thereby equipping students not only with academic knowledge but also with the intellectual agility necessary for societal transformation.

Although global studies affirm the broad benefits of CBA, few empirical investigations have examined its specific impact on critical thinking development through productive language skills in Cameroonian secondary schools. The limited

research that exists tends to emphasize general academic achievement rather than exploring how competence-based instruction influences higher-order cognitive abilities such as reasoning, analysis, and synthesis in speaking and writing. Moreover, there is little understanding of how factors such as gender interact with instructional methods to shape these outcomes. This study seeks to address these gaps by providing a localized, skill-focused, and gender-sensitive analysis of how the Competence-Based Approach can foster critical thinking abilities among Form Three students in Mezam Division.

### **Statement of the Problem**

Despite ongoing educational reforms in Cameroon, critical thinking remains underdeveloped among secondary school students, particularly in the productive English language skills of speaking and writing. In Mezam Division, English instruction often centers on grammar and vocabulary, neglecting opportunities for analytical expression. This overreliance on rote learning and receptive skills contributes to persistent underperformance in national Ordinary and Advanced Level examinations. From 2019 to 2023, examination data consistently show weak student performance in tasks requiring critical thinking, highlighting the limited integration of higher-order skills in classroom practice. Government initiatives promoting learner-centered methods have yet to overcome entrenched instructional habits and resource constraints. Consequently, learners struggle to articulate ideas, evaluate information, and generate independent responses skills vital for academic and professional success.

This study investigates the impact of Competency-Based Approach (CBA) on the development of critical thinking through productive language tasks in Mezam Division. By analysing student outcomes, instructional practices, and stakeholder perceptions, it aims to inform pedagogical strategies that foster deeper engagement and strengthen 21st-century competencies.

### Objectives of the Study

- To examine how the use of CBA in teaching productive skills affects the critical thinking abilities of secondary school students in Mezam Division.
- To examine the interaction effects between teaching methods and gender on the critical thinking abilities of students in Mezam Division.

### Research Questions

- How does the use of CBA in teaching productive skills affect the critical thinking abilities of secondary school students in Mezam Division?
- What are the interaction effects between teaching methods and gender on the critical thinking abilities of students in Mezam Division?

### Hypotheses

**H0<sub>1</sub>:** The use of CBA in teaching productive skills has no significant effect on the critical thinking abilities of secondary school students in Mezam Division.

**Ha<sub>1</sub>:** The use of CBA in teaching productive skills has a significant effect on the critical thinking abilities of secondary school students in Mezam Division.

**H0<sub>2</sub>:** There are no significant interaction effects between teaching methods and gender on

the critical thinking abilities of students in Mezam Division.

**Ha<sub>2</sub>:** There are significant interaction effects between teaching methods and gender on the critical thinking abilities of students in Mezam Division.

### Methodology

This study adopted a mixed-methods research design to obtain a comprehensive understanding of how the Competency-Based Approach (CBA) influences the development of critical thinking among secondary school students. A quasi-experimental structure was employed, consisting of two experimental groups exposed to CBA instruction and one control group taught through traditional methods. The Watson-Glaser Critical Thinking Appraisal and the revised Bloomfield’s Taxonomy served as pre-tests and post-tests to establish baseline performance and assess post-treatment outcomes. The experimental group (E1) underwent CBA instruction (X1) between pre-test (O1) and post-test (O2), while the control group (C) received no treatment, ensuring a clear basis for comparison (See Table 1). This design provided both measurable evidence of instructional impact and an understanding of how competence-based pedagogy operates in real classroom contexts.

**Table 1: Design of the Experiment**

Group	Pre-test	Treatment	Posttest
Competency-Based Approach (E <sub>1</sub> )	O <sub>1</sub>	X <sub>1</sub>	O <sub>2</sub>
Traditional Learning Method (C)	O <sub>1</sub>	-	O <sub>2</sub>
Where O <sub>1</sub> is the pretest administration			

O<sub>2</sub> is the posttest administration

X<sub>1</sub> is the Treatment of Experimental Group on Competency-Based Approach (E<sub>1</sub>)

- indicates no treatment for the control group (C)

The accessible population comprised 152 English language teachers and 3,946 Form Three students in Mezam Division, though security challenges limited access to some schools. Using a multi-stage sampling technique, 86 students from two intact classes were selected from two subdivisions, with Government Bilingual High School (GBHS) Bamendankwe serving as the experimental site (with 45 students) and Government High School (GHS) Mulang serving as the control (with 41 students). A researcher-designed pre- and post-tests adapted from Watson-Glaser and Bloomfield’s frameworks and classroom observation checklists were used for data collection. Data collection combined quantitative and qualitative procedures. Test scores measured students’ reasoning and

analytical progress, while observation checklists captured classroom practices and engagement. Quantitative data were analyzed using descriptive and inferential statistics, including mean scores, standard deviations, and ANCOVA to determine the significance of differences between experimental and control groups. The integration of both data strands allowed for triangulation, enhancing the validity and reliability of findings and ensuring that the conclusions reflect both statistical trends and contextual realities.

**Findings**

**Research Question 1:** How does the use of CBA in teaching productive skills affect the critical thinking abilities of secondary school students in Mezam Division?

**Table 2: Use of CBA in Teaching Productive Skills and The Critical Thinking Abilities of Secondary School Students**

GROUP		Pre-Test Critical Thinking Mean	Posttest Critical Thinking Mean	Mean Gain	Decision
Experimental Group on CBA	N	45	45		More Effective
	Mean	79.733	100.167	20.434	
	Std. Deviation	9.148	5.988		
Control Group	N	41	41		
	Mean	82.317	89.744	7.427	
	Std. Deviation	6.562	4.924		

The findings in Table 2 provide clear insights into the impact of the Competency-Based Approach (CBA) on the critical thinking abilities of secondary school students in Mezam Division. The experimental group, which was taught productive skills using CBA, exhibited a great improvement in their critical thinking abilities, as evidenced by their mean gain of 20.434 between

the pre-test and post-test scores. In contrast, the control group, which was not exposed to CBA, showed a much lower mean gain of 7.427. This substantial difference suggests that the use of CBA is more effective in enhancing critical thinking abilities compared to traditional teaching methods.

A closer analysis of the standard deviations further supports this conclusion. The experimental group had a higher standard deviation in the pre-test (9.148) compared to the control group (6.562), indicating a greater variation in critical thinking abilities before the intervention. However, after the implementation of CBA, the experimental group's standard deviation reduced to 5.988, showing a more consistent improvement in critical thinking. Meanwhile, the control group's standard deviation also reduced slightly to 4.924, but this change was not as significant, suggesting that the traditional teaching methods were less effective in fostering critical thinking development.

The decision column in the table confirms that the use of CBA is more effective in improving students' critical thinking abilities. This aligns with the principles of CBA, which emphasise problem-solving, creativity, and active engagement in learning, factors that are crucial in developing critical thinking. The higher mean gain

in the experimental group indicates that when students engage in competency-based activities, they are more likely to develop and refine their critical thinking skills.

Therefore, the results from Table 2 provide strong evidence that incorporating CBA in teaching productive skills will greatly enhances students' critical thinking abilities. The substantial mean gain observed in the experimental group highlights the effectiveness of CBA in promoting analytical and evaluative skills among students.

**H0<sub>1</sub>:** The use of CBA in teaching productive skills has no significant effect on the critical thinking abilities of secondary school students in Mezam Division.

**Ha<sub>1</sub>:** The use of CBA in teaching productive skills has a significant effect on the critical thinking abilities of secondary school students in Mezam Division.

**Table 3: ANCOVA Test of Significance in Difference between the Mean Critical Thinking Scores of Students taught Productive Skills using CBA and the Traditional Approach**

Dependent Variable: POSTTEST CRITICAL THINKING MEANS						
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2339.859 <sup>a</sup>	2	1169.929	16.968	.000	.290
Intercept	17127.101	1	17127.101	248.402	.000	.750
PRE-TEST CRITICAL THINKING MEANS	9.280	1	9.280	.135	.715	.002
GROUP	2272.007	1	2272.007	32.952	.000	.284
Error	5722.781	83	68.949			
Total	787446.000	86				
Corrected Total	8062.640	85				
a. R Squared = .290 (Adjusted R Squared = .273)						

The findings presented in Table 3 provide strong statistical evidence to reject the null hypothesis (H0<sub>1</sub>) and support the alternative hypothesis

(Ha<sub>1</sub>). The Analysis of Covariance (ANCOVA) results indicate a significant difference between the mean critical thinking scores of students

taught productive skills using the Competency-Based Approach (CBA) and those taught using traditional methods. The significance value (Sig.) for the group variable is .000, which is well below the conventional threshold of 0.05. This suggests that the use of CBA has a statistically significant effect on the critical thinking abilities of secondary school students in Mezam Division.

Moreover, the F-value of 32.952 for the group variable confirms a substantial effect, reinforcing that the observed differences in critical thinking scores are unlikely to have occurred by chance. The partial eta squared value of .284 indicates that CBA accounts for 28.4% of the variance in students' post-test critical thinking scores, which is a meaningful effect size in educational research. In contrast, the pre-test critical thinking scores ( $F = 0.135$ ,  $Sig. = .715$ ) do not show a statistically significant influence on the post-test scores, meaning that initial differences in students' critical thinking abilities did not significantly impact the outcomes of the study.

The adjusted R-squared value of .273 suggests that the model explains approximately 27.3% of the variance in post-test critical thinking scores, indicating a moderate but notable impact of CBA on student performance. This further strengthens the argument that instructional approach plays a crucial role in shaping students' critical thinking skills. The high intercept value ( $F = 248.402$ ,  $Sig. = .000$ ) implies that other contributing factors may influence critical thinking abilities, but the significant effect of CBA remains evident.

Therefore, the ANCOVA results provide compelling evidence that the use of CBA in teaching productive skills significantly enhances the critical thinking abilities of secondary school students in Mezam Division. Therefore, the null hypothesis ( $H_{01}$ ) is rejected in favour of the alternative hypothesis ( $H_{a1}$ ).

**Research Question 2:** What are the interaction effects between teaching methods and gender on the critical thinking abilities of students in Mezam Division?

**Table 4: Interaction Effects Between Teaching Methods and Gender on the Critical Thinking Abilities of Students**

Dependent Variable: POSTTEST CRITICAL THINKING MEAN

GROUP	SEX	N	Mean	Std. Deviation
Experimental Group on CBA	Male	16	97.70	6.043
	Female	29	101.54	5.862
	Total	45	99.62	5.988
Control Group on Traditional Approach	Male	14	89.90	5.717
	Female	27	89.67	4.577
	Total	41	89.75	4.924
Total	Male	30	93.80	8.771
	Female	56	95.61	7.966
	Total	86	94.71	8.354

The data indicate a clear interaction between teaching method and gender on students' critical thinking abilities. Within the experimental group taught using the Competency-Based Approach (CBA), females achieved a higher post-test mean score (101.54) than males (97.70), with both scores exceeding the overall experimental group mean of 99.62. In contrast, the control group

taught through the traditional approach showed almost identical mean scores for males (89.90) and females (89.67), suggesting no meaningful gender-related performance variation under conventional instruction. This contrast implies that CBA not only raises critical thinking performance overall but also reveals modest gender differences in learning gains, favoring females in this context.

When results are aggregated across both groups, the total post-test means for males (93.80) and females (95.61) are close, reflecting no substantial gender effect at the overall population level. However, the higher scores in the experimental group compared to the control group (99.62 vs. 89.75) underscore that teaching method exerts a stronger influence than gender on students' critical thinking development. The data suggest that CBA enhances critical reasoning skills for both sexes but may create a slightly more supportive learning environment for female students, possibly due to its collaborative and inquiry-driven nature. This

interaction effect highlights pedagogy as the dominant factor shaping cognitive outcomes while indicating nuanced benefits for female learners in CBA classrooms.

**Ho<sub>2</sub>:** There is no significant interaction effect between teaching methods and gender on the critical thinking abilities of students in Mezam Division.

**Ha<sub>2</sub>:** There is a significant interaction effect between teaching methods and gender on the critical thinking abilities of students in Mezam Division.

**Table 5: Interaction Effects between Teaching Methods and Gender on the Critical Thinking Abilities of Students**

Dependent Variable: POSTTEST CRITICAL THINKING MEANS					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Model	612498.443 <sup>a</sup>	4	87499.778	2475.182	.000
PRETEST CRITICAL THINKING MEANS	36.471	1	36.471	1.032	.312
GROUP	4326.941	1	2163.470	61.200	.000
SEX	.850	1	.850	.024	.877
GROUP * SEX	114.800	2	57.400	1.624	.201
Error	4489.557	82	35.351		
Total	616988.000	86			

a. R Squared = .993 (Adjusted R Squared = .992)

The ANCOVA results examine the interaction effect between teaching method and gender on students' post-test critical thinking abilities, controlling for pre-test scores. The covariate, pre-test critical thinking, did not have a statistically significant effect on the post-test scores ( $F = 1.032, p = .312$ ), indicating that initial differences in critical thinking levels did not significantly influence the post-test outcomes. The main effect of group (teaching method) was significant ( $F = 61.200, p < .001$ ), showing that the Competency-Based Approach (CBA) produced higher critical thinking scores than traditional instruction, consistent with expectations. The main effect of gender was not significant ( $F = .024, p = .877$ ),

suggesting that male and female students performed similarly overall when ignoring group differences.

The interaction effect between teaching method and gender (GROUP \* SEX) was not statistically significant ( $F = 1.624, p = .201$ ). This indicates that the impact of the teaching method on critical thinking did not differ significantly between males and females; in other words, both genders benefited similarly from the Competency-Based Approach. Consequently, we fail to reject the null hypothesis (Ho<sub>2</sub>), which stated that there is no significant interaction effect between teaching method and gender on students' critical thinking. The results highlight that the teaching method

itself is the primary driver of performance differences, rather than an interaction with gender.

### Findings from Observation

**Table 6: Observed Critical Thinking Skills in Productive Skills across the Control and Experimental Group**

	Checklist Items	Observation Scores for Control Group	Observation Scores for CBA Group
1	Ability to analyse and evaluate spoken information before responding	2	3
2	Use of logical reasoning and relevant evidence in arguments or discussions.	1	2
3	Ability to ask thought-provoking and clarifying questions during discussions.	1	3
4	Effectiveness in organising ideas coherently while speaking.	2	3
5	Ability to recognise and challenge assumptions in conversations.	2	2
6	Clarity and precision in articulating ideas and opinions.	1	2
7	Ability to synthesise different viewpoints before forming an opinion.	1	2
8	Use of appropriate tone and register to suit different contexts and audiences.	1	2
9	Effectiveness in responding to counterarguments with logical reasoning.	1	2
10	Ability to make connections between spoken ideas and real-world applications.	2	2
11	Ability to construct well-structured essays with clear thesis statements.	1	2
12	Use of supporting evidence and examples to justify arguments in writing.	1	2
13	Ability to critically evaluate and revise own written work.	1	2
14	Use of appropriate transitions to ensure logical flow of ideas in writing.	1	2
15	Skill in identifying and addressing inconsistencies or logical fallacies in writing.	2	3
16	Ability to integrate multiple perspectives in argumentative writing.	1	2
17	Use of precise and varied vocabulary to enhance clarity of written expression.	1	2
18	Ability to analyse and critique texts in written responses.	1	3
19	Effectiveness in synthesising information from multiple sources to create original ideas.	1	2
20	Ability to recognise and avoid bias in written arguments	2	3
	<b>Overall Observed Critical Thinking Score Per Group (Out of 80)</b>	<b>26</b>	<b>46</b>

**Key: 1=Very Low Extent (VLE), 2=Low Extent (LE), 3=High Extent (HE), 4= Very High Extent (VHE)**

The findings in Table 6 provide a comparative analysis of critical thinking skills in productive tasks across two instructional approaches: the Control Group (traditional instruction), the CBA (Competency-Based Approach) Group. The results indicate significant variations in students' ability to think critically. The Control Group recorded the lowest scores, with most indicators falling within the "Very Low Extent" (1) or "Low Extent" (2) categories. This suggests that traditional instructional methods did not effectively nurture critical thinking in productive skills such as argumentation, organisation of ideas, or the ability to challenge assumptions. Specifically, students in this group struggled with logical reasoning, the use of supporting evidence, and the synthesis of different viewpoints. Their overall score of 26 out of 80 underscores a significant gap in the development of higher-order thinking skills.

The CBA Group demonstrated considerable improvement compared to the Control Group, with scores ranging between 2 (Low Extent) and 3 (High Extent). This suggests that a competency-based approach fosters better analytical and evaluative skills, particularly in speaking and writing. Notable improvements were seen in the ability to ask thought-provoking questions, construct well-structured essays, and recognise bias in arguments. The group's overall score of 46 out of 80 indicates a moderate level of critical thinking proficiency, highlighting the positive but somewhat limited impact of CBA in enhancing higher-order cognitive skills. Their overall score of 60 out of 80 reinforces the argument that active, inquiry-driven learning significantly enhances students' critical thinking abilities.

Summarily, the findings highlight competency-based approach in fostering critical thinking in productive skills. These results suggest that instructional strategy emphasising inquiry, real-world application, and problem-solving is more effective in developing students' ability to think critically in both spoken and written tasks. However, even in the highest-scoring group, a perfect score was not achieved, indicating room

for further refinement in pedagogical approaches to fully optimize critical thinking development in students.

### **Summary of Findings**

#### ***Effect of the Competency-Based Approach (CBA) on Students' Critical Thinking Abilities***

The findings reveal that the use of CBA in teaching productive skills significantly enhances the critical thinking abilities of secondary school students in Mezam Division. Students in the experimental group demonstrated a substantial mean gain of 20.434 between pre-test and post-test scores, compared to a mean gain of 7.427 in the control group taught via traditional methods. ANCOVA results confirmed the statistical significance of this difference ( $F = 32.952$ ,  $p < .001$ ), with the partial eta squared (.284) indicating that 28.4% of the variance in post-test critical thinking scores was attributable to instructional method. Observational data further support these results, showing that students exposed to CBA demonstrated higher proficiency across 20 critical thinking indicators, including analysis, synthesis, logical reasoning, and argumentation, with an overall observed score of 46 out of 80 compared to 26 in the control group. These findings suggest that CBA, by promoting active engagement, problem-solving, and real-world application, effectively cultivates higher-order cognitive skills in both spoken and written tasks. Consequently, the null hypothesis ( $H_0$ ) was rejected in favor of the alternative ( $H_a$ ), affirming that CBA has a significant positive effect on students' critical thinking.

#### ***Interaction Effects of Teaching Method and Gender on Students' Critical Thinking***

The data indicate that gender does not significantly moderate the effect of teaching method on students' critical thinking abilities. Within the experimental group, females had a slightly higher mean post-test score (101.54) than males (97.70), whereas the control group showed nearly identical scores for males (89.90) and females (89.67). ANCOVA results for the interaction effect (GROUP \* SEX) were not

statistically significant ( $F = 1.624$ ,  $p = .201$ ), demonstrating that both genders benefited similarly from CBA. Although females in the experimental group performed marginally better, the primary determinant of critical thinking improvement was the teaching method rather than gender. This underscores the conclusion that instructional strategy, particularly the use of CBA, is the dominant factor in enhancing students' critical thinking, while demographic factors such as gender play a minimal role. Observations also indicate that both male and female students in the CBA group improved across key critical thinking skills, reinforcing that pedagogy, rather than gender, drives cognitive development.

### Discussion of Findings

#### Use of CBA in Teaching Productive Skills and its Effect on Students' Critical Thinking

The findings of this study reveal a significant impact of the Competency-Based Approach (CBA) on the development of critical thinking skills among secondary school students, corroborating existing empirical literature. The substantial mean gain observed among students in the CBA group aligns with studies by Monyatsi (2020) and Ndahayo et al. (2022), who found that learners exposed to competency-based instructional methods demonstrated greater analytical, evaluative, and problem-solving skills compared to peers in traditional classrooms. CBA emphasises learner-centered instruction, practical engagement, and performance-based assessment, all of which foster independent thinking and reflection, core elements of critical thinking. The consistent performance across students, as evidenced by a reduced post-test standard deviation, further supports the claim that CBA can promote equity in learning outcomes by offering all students structured opportunities to engage meaningfully with content.

The results are also theoretically supported by Bloom's Taxonomy of Educational Objectives, which places critical thinking at the higher levels of cognitive engagement, analysis, evaluation, and creation. CBA, by its design, compels students to

operate within these higher-order domains through problem-solving tasks, real-world applications, and reflective assessments. Unlike traditional methods that often emphasise rote memorisation, CBA enables students to apply knowledge in new contexts, thereby activating and developing critical thinking capacities. This is in line with the findings of Oyoo and Agwagah (2018), who noted that students in competency-based classrooms were better able to synthesise information and justify their reasoning in both oral and written tasks.

Furthermore, the Constructivist Learning Theory, particularly as articulated by Piaget and Vygotsky, provides a solid foundation for understanding the effectiveness of CBA in enhancing critical thinking. According to constructivist principles, learners build knowledge actively through interaction with their environment, peers, and instructional materials. Moreover, the significant effect size reported in this study (partial eta squared = .284) demonstrates that a meaningful portion of the variance in post-test scores can be attributed to the CBA intervention. This aligns with findings from Abdu-Raheem (2016), who emphasised the role of performance-based and reflective tasks in nurturing students' metacognitive skills and higher-order thinking. These outcomes suggest that CBA is not merely an alternative instructional method but a transformative approach capable of reshaping how learners process information and solve complex problems.

Therefore, the evidence from this study, supported by both empirical research and educational theory, strongly affirms that the Competency-Based Approach significantly improves students' critical thinking abilities. The emphasis on learner engagement, real-world problem solving, and continuous assessment provides a conducive framework for developing critical cognitive skills. As such, the findings advocate for wider adoption of CBA within the secondary school curriculum, especially in contexts like Mezam Division where the development of 21st-century skills is

increasingly essential for academic and lifelong success.

### **Interaction of Instructional Methods and Gender on Students' Critical Thinking**

The study's findings indicate that gender does not significantly moderate the effect of teaching method on students' critical thinking abilities. Within the experimental group, females had a slightly higher mean post-test score (101.54) than males (97.70), whereas the control group showed nearly identical scores for males (89.90) and females (89.67). ANCOVA results for the interaction effect (GROUP \* SEX) were not statistically significant ( $F = 1.624$ ,  $p = .201$ ), demonstrating that both genders benefited similarly from the Competency-Based Approach (CBA). Although females in the experimental group performed marginally better, the primary determinant of critical thinking improvement was the teaching method rather than gender. This underscores the conclusion that instructional strategy, particularly the use of CBA, is the dominant factor in enhancing students' critical thinking, while demographic factors such as gender play a minimal role. Observations also indicate that both male and female students in the CBA group improved across key critical thinking skills, reinforcing that pedagogy, rather than gender, drives cognitive development.

Empirical studies support these findings, highlighting that teaching methods have a more substantial impact on critical thinking than gender. For instance, a study by Obodo and Ani (2023) found no significant interaction effect between teaching method and gender on students' academic achievement and interest in Basic Science, suggesting that the teaching method is a gender-neutral factor influencing student outcomes. Similarly, Dew et al. (2023) observed that inquiry-based learning methods improved student engagement and learning outcomes regardless of gender, indicating that such pedagogical approaches are equally effective for all students. Furthermore, Karim et al. (2025) reported that evidence-based active-engagement courses

reduced the gender gap in introductory physics, demonstrating that active learning strategies can promote equity in educational outcomes. Collectively, these studies reinforce the notion that pedagogical approaches, rather than gender, are pivotal in fostering critical thinking skills among students

### **Conclusion:**

The study concludes that the Competency-Based Approach (CBA) significantly enhances the critical thinking abilities of secondary school students in Mezam Division, irrespective of gender. While females in the experimental group performed slightly better than males, the difference was not statistically significant, indicating that instructional method is the primary driver of cognitive development. Both qualitative observations and quantitative analyses confirm that CBA fosters analytical, evaluative, and problem-solving skills in students more effectively than traditional teaching methods. Therefore, gender does not significantly moderate the impact of teaching strategies on critical thinking, emphasizing the centrality of pedagogy in shaping higher-order cognitive skills.

### **Implications of the Findings**

1. The results highlight the necessity of integrating CBA into secondary school curricula to promote critical thinking. Policymakers and school administrators should prioritize teacher training and resource allocation to implement CBA effectively, ensuring that students of all genders benefit equally from active, inquiry-driven learning.
2. Since gender does not significantly influence critical thinking development under CBA, educators can focus on creating inclusive, student-centered learning environments that cater to diverse learners without resorting to gender-specific instructional modifications. This supports equitable access to quality education in line with Vision 2035 and SDG 4 goals.

## Recommendations

1. Teachers should receive continuous professional training on CBA techniques and strategies for teaching productive skills to enhance critical thinking. Workshops, seminars, and collaborative learning communities could reinforce best practices and improve classroom implementation.
2. Schools should systematically adopt and monitor CBA across subjects, particularly in English language teaching, to ensure that lesson plans, assessments, and learning activities promote higher-order thinking skills. Regular classroom observations and evaluations could help identify areas for improvement and maintain instructional quality.

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