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Cultivating Critical Thinking in EFL Learning: Strategies, Outcomes, and Contextual Considerations

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ABSTRACT

The link between Critical Thinking (CT) and English as a Foreign Language (EFL) education has been extensively studied in the literature. However, there is a lack of research on investigating the integration of CT activities in EFL education at Saudi Arabian universities. Building on current research highlighting the relationship between language proficiency and cognitive development, this study attempts to examine instructional strategies, implementation challenges, and pedagogical outcomes. Through a quantitative analysis of 35 EFL teachers' responses to a Likert-scale questionnaire, the research identifies key findings in three areas. First, while active learning (mean = 4.2) and text analysis (mean = 4.1) emerged as the most effective strategies, their implementation faced significant constraints from language proficiency barriers (74% agreement) and large class sizes (69% agreement). Second, teachers demonstrated strong commitment to sociocultural adaptation, with high emphasis on cultural relevance (77% agreement) and prior knowledge activation (83% agreement), though multilingual approaches remained underutilized (60%). Third, CT integration showed positive impacts on language proficiency (80% agreement) and learner autonomy (74% agreement), but revealed gaps in academic achievement alignment (74%). The findings suggest that successful CT integration requires institutional support through reduced class sizes, enhanced professional development in culturally responsive pedagogies, and curriculum redesign that balances global teaching approaches with local contexts. This research contributes to the growing body of literature on CT in EFL contexts and provides practical implications for educational policy and practice in alignment with Saudi Arabia's Vision 2030 educational modernization goals.

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ARTICLE INFO

Received: 5 March 2025 | Revised: 5 April 2025 | Accepted: 9 April 2025 | Published Online: 17 April 2025
DOI: https://doi.org/10.30564/fls.v7i4.8968

CITATION

Allehyani, F., 2025. Cultivating Critical Thinking in EFL Learning: Strategies, Outcomes, and Contextual Considerations. Forum for Linguistic Studies. 7(4): 974–988. DOI: https://doi.org/10.30564/fls.v7i4.8968

Keywords: Critical Thinking; EFL Learning; Instructional Strategies; Sociocultural Adaptation; Saudi Arabia

1. Introduction

In the context of English language education, the development of Critical Thinking (CT) skills has become increasingly recognized as a crucial component of effective and comprehensive language learning[1, 2]. CT, which involves the ability to analyze, evaluate, and synthesize information, is not only essential for academic success but also essential for navigating the complex challenges of the 21st-century global landscape[3]. As such, there has been a growing emphasis on integrating CT activities into English as a Foreign Language (EFL) curricula and instructional practices[4].

Existing research has highlighted the positive impacts of incorporating CT into EFL learning, suggesting that it can lead to significant improvements in language proficiency, academic achievement, and the development of higher-order cognitive skills[5, 6]. Furthermore, studies have identified a range of effective instructional strategies, such as explicit instruction, teacher questioning, active and cooperative learning, and inquiry-based approaches, that can be employed to foster CT in EFL classrooms[7, 8].

The implementation of CT activities in Saudi EFL classrooms faces significant linguistic barriers, particularly at foundational skill levels. In their study of Saudi secondary school learners, Hago and Khan identified persistent pronunciation difficulties that impacted students' confidence and classroom participation[9]. Their findings revealed that 67% of students struggled with specific English phonemes, leading to communication anxiety and reduced engagement in interactive activities. These fundamental language challenges underscore the need for carefully scaffolded CT integration strategies that address both linguistic and cognitive development.

However, there is a need for a more comprehensive understanding of the specific ways in which CT activities can support and extend EFL learning, as well as the contextual factors that may influence the implementation and effectiveness of such approaches[10]. This study aims to address this gap by exploring the relationship between CT activities and EFL learning, with a particular focus on identifying the instructional strategies and best practices that can maximize the benefits of CT-focused EFL instruction.

1.1. The Statement of the Problem

Despite the growing recognition of the importance of CT skills in effective and comprehensive language learning, there is a need for a more comprehensive understanding of the specific ways in which CT activities can support and extend EFL learning outcomes. While existing research has highlighted the positive impacts of incorporating CT into EFL instruction, leading to improvements in language proficiency, academic achievement, and higher-order cognitive skills, there remains a gap in the literature regarding the most effective instructional strategies for fostering CT in diverse EFL contexts and the contextual factors that may influence the implementation and effectiveness of such approaches.

This study aims to address this gap by exploring the relationship between CT activities and EFL learning focusing on:

- Evaluating the impact of integrating CT activities into EFL instruction on students' language proficiency, CT skills, and academic achievement.
- Identifying the most effective instructional strategies and approaches for teaching CT skills in EFL classrooms to provide guidance on their implementation.
- Examining the importance of adapting CT-focused EFL instruction to the specific sociocultural contexts of diverse EFL settings, and the implications for teacher training and professional development.

This will contribute valuable insights to the growing body of literature on CT in EFL education, providing EFL educators, curriculum designers, and policymakers with a comprehensive understanding of the role of CT activities in enhancing language learning outcomes and the strategies required to maximize their benefits within various EFL contexts.

1.2. Research Questions

The main research questions guiding this study are:

(1) What is the impact of integrating CT activities into EFL instruction on students' language proficiency, CT skills, and academic achievement?

(2) What instructional strategies and approaches are most effective in fostering CT skills among EFL learners, and how can they be implemented in EFL classrooms?
(3) How can CT-focused EFL instruction be adapted to the specific sociocultural contexts of diverse EFL settings, and what are the implications for teacher training and professional development?

2. Literature Review

2.1. The Relationship between CT Activities and EFL

The importance of studying the relationship between CT activities and EFL learning can be highlighted as follows:

2.1.1. Enhancing Language Proficiency and Academic Achievement

The research studies demonstrate that integrating CT activities into EFL instruction can lead to significant improvements in English proficiency, CT skills, and overall academic achievement [4, 7]. This highlights the key role of CT in supporting and extending EFL learning outcomes.

2.1.2. Developing Multifaceted Language Skills

The studies show that CT activities not only improve core CT abilities but also positively impact various language skills, such as vocabulary, communication, reading comprehension, and writing [1, 5]. This suggests that CT is a crucial component of holistic language development.

2.1.3. Identifying Effective Instructional Strategies

The literature provides insights into various effective instructional strategies for teaching CT in EFL classrooms, including explicit instruction, active and cooperative learning, inquiry-based approaches, and the integration of real-world elements [2, 8, 11]. Understanding these strategies can inform pedagogical practices and teacher training. The challenge of implementing effective vocabulary instruction methods for non-native learners has significant implications for CT development. Elmahdi and Hezam conducted a comprehensive analysis of vocabulary teaching challenges in Saudi universities, finding that institutional policies favoring English-only instruction often constrained teachers' ability to utilize students' full linguistic repertoire [12]. Their research documented how monolingual approaches can limit comprehension and concept development, particularly for complex analytical tasks. This highlights the importance of flexible linguistic approaches in supporting CT development.

2.1.4. Adapting to Local Contexts

The research highlights the importance of adapting CT instruction to the specific sociocultural contexts of EFL settings [10]. This emphasizes the need for context-sensitive teaching approaches and ongoing professional development for EFL educators.

2.1.5. Bridging the Gap between Language Learning and Higher-Order Thinking

Studying the intersection of CT and EFL learning can help bridge the gap between language acquisition and the development of advanced cognitive skills, which are essential for academic and professional success in the 21st century [3, 13].

2.1.6. Informing Curriculum and Materials Design

The findings from these studies can inform the development of EFL curricula, textbooks, and learning materials that strategically integrate CT activities to enhance students' language proficiency and CT abilities [6, 14].

In summary, the importance of studying CT activities and EFL learning lies in its potential to improve language outcomes, identify effective instructional strategies, adapt to local contexts, develop higher-order thinking skills, and inform curriculum and materials design. This research area can offer valuable insights for EFL educators, policymakers, and materials developers.

2.2. CT Activities and EFL Learning

CT activities play a vital role in supporting and extending EFL learning. Agustina et al. demonstrate how a mobile learning application called "English with Noni" can effectively infuse CT instruction into EFL classes [5]. The findings show that the experimental group using this application significantly improved their CT levels compared to the control group. Students in the experimental group reported that the application helped develop their CT skills, such as predicting, providing reasons, expressing viewpoints, finding alternatives, and making conclusions. Additionally,

they observed positive impacts on their language skills and vocabulary[5]. This suggests that integrating CT activities into EFL learning can enhance various aspects of language development.

Task-based approaches are found to be vital in fostering both language proficiency and CT skills. A study demonstrated that task-based instruction significantly improved learner performance across multiple competencies, with particularly strong effects on analytical and problem-solving abilities[15]. The study documented a 23% improvement in student engagement and a 31% increase in autonomous learning behaviors when task-based approaches were implemented systematically[15]. These findings suggest that structured task-based activities can effectively bridge language learning and CT development. Similarly, Yang and Gamble found that CT-enhanced EFL activities led to significant improvements in English proficiency, CT, and academic achievement compared to non-CT-enhanced activities[4]. They designed theory-based learning activities that targeted language learning, CT development, and academic achievement[4]. This approach proved to be more effective than traditional EFL activities without an explicit focus on CT. Moreover, Li and Liu examined how active learning with content and language integrated learning (CLIL) can help Japanese EFL learners develop CT skills[1]. The results showed that active learning with CLIL instruction, which included scaffolding activities and questions based on Bloom's taxonomy, effectively increased the students' CT disposition and skills[1].

Furthermore, several studies highlight various instructional strategies that can promote CT in EFL classrooms[2, 16]. These strategies include explicit instruction, teacher questioning, active and cooperative learning, collaborative learning, inquiry-based instruction, problem-solving tasks, critical reading and writing exercises, and the integration of real-world issues into the curriculum. In addition, Wale and Bishaw specifically focused on the effects of inquiry-based argumentative writing instruction on EFL students' CT skills[3]. The findings suggest that this approach enhanced students' interpretation, analysis, evaluation, inference, explanation, and self-regulation abilities, which are core CT skills.

Finally, studies emphasize the benefits of using Socratic Seminars and other practical activities in EFL classrooms to foster CT skills[13, 14]. These strategies not only develop higher-order thinking but also positively impact students' language learning process, communication, vocabulary, and language use in various contexts. The reviewed studies collectively demonstrate that CT activities play a vital role in supporting and extending EFL learning. By integrating CT instruction, active learning, inquiry-based approaches, and practical activities into EFL classrooms, educators can effectively enhance students' CT skills, language proficiency, and overall academic achievement.

2.3. The Effective Strategies for Teaching CT in EFL

Research underscores the importance of multifaceted pedagogical approaches to cultivate CT in EFL classrooms. One foundational strategy is explicit instruction paired with teacher questioning, as highlighted by Zhao et al[2]. By directly teaching CT skills—such as analysis and evaluation—and using Bloom's taxonomy-based questions, educators can scaffold both lower-order (e.g., recalling information) and higher-order thinking (e.g., synthesizing ideas). For instance, asking learners to compare cultural perspectives in a text or defend an argument fosters deeper cognitive engagement.

Active and cooperative learning strategies further amplify CT development. Zhao et al. advocate for collaborative activities such as debates, peer critiques, and group discussions, which require students to articulate and refine their reasoning in social contexts[2]. These methods align with the findings of Oktaviah et al. and Koukpossi et al., who emphasize inquiry-based learning and problem-solving tasks[11, 16]. For example, assigning learners to investigate a real-world issue (e.g., climate change) and propose solutions integrates language practice with analytical rigor. Integration of civics and real-world content into curricula also proves impactful. Lan demonstrates that embedding English civics elements—such as debates on democratic principles or ethical dilemmas—enhances learners' abilities to interpret, evaluate, and reason[6]. Similarly, it is noted that concept mapping and analytical questioning, when applied to socially relevant topics, bridge language learning with critical analysis[8].

Structural and contextual adaptations are equally vital. Chen and Preston stress the role of organizational strategies such as team-building exercises and conflict resolution

frameworks to foster collaborative CT[17]. Meanwhile, Li argues for tailoring these strategies to local sociocultural contexts[10]. For instance, using region-specific case studies or multilingual scaffolding (e.g., Arabic-English comparisons) ensures CT tasks resonate with learners' lived experiences. Thus, effective CT instruction in EFL hinges on a blend of explicit skill-building, collaborative inquiry, culturally relevant content, and systemic support. Successful implementation requires ongoing teacher training to adapt these strategies contextually, ensuring they align with both global pedagogical standards and local educational realities.

2.4. CT in EFL Learning: Strategies and Outcomes

The impact of CT activities on EFL learning strategies, outcomes, and contextual considerations has been taken seriously nowadays. Agustina et al. found that the "English with Noni" mobile learning application, which integrates CT instruction, significantly improved EFL students' CT levels and positively impacted their language skills and vocabulary[5]. This highlights the potential of mobile learning tools to enhance CT in EFL classrooms.

Similarly, Yang and Gamble reported that CT-enhanced EFL activities led to significant improvements in English proficiency, CT, and academic achievement, compared to non-CT-enhanced activities[4]. This emphasizes the value of designing theory-based learning activities that target language learning, CT development, and academic achievement. Li and Liu examined how active learning with CLIL can help Japanese EFL learners develop CT skills[1]. The results showed that this approach effectively increased students' CT disposition and skills.

It highlights various instructional strategies that can promote CT in EFL classrooms, such as explicit instruction, teacher questioning, active and cooperative learning, inquiry-based instruction, and the integration of real-world issues[2, 8, 11]. Several studies focused on the effects of inquiry-based argumentative writing instruction and Socratic Seminars, respectively, in fostering CT skills among EFL students[3, 13]. Moreover, Li emphasized the importance of adapting CT instruction to the specific sociocultural contexts of EFL settings, underscoring the need for context-sensitive teaching approaches and ongoing teacher training[10]. Hence, the reviewed studies demonstrate that integrating CT activities into EFL learning can enhance various aspects of language development, including proficiency, academic achievement, and the cultivation of higher-order cognitive skills. The findings also provide valuable insights into effective instructional strategies and the importance of contextual factors in implementing CT-focused EFL approaches.

3. Research Methodology

This study will employ a quantitative research design using a Likert-scale questionnaire administered to EFL teachers from Saudi universities to assess their perceptions, experiences, and approaches to teaching CT skills in the EFL classroom. A purposive sampling technique will be used to select EFL teachers with varying levels of experience from Saudi universities to participate in the Likert-scale questionnaire. The questionnaire will be designed to gather data on the following aspects:

(1) EFL teachers' conceptualizations of CT.
(2) Instructional strategies and approaches used to foster CT skills.
(3) Perceived challenges and facilitators in implementing CT-focused EFL instruction.
(4) Adaptations made to CT activities based on the sociocultural context.
(5) Perspectives on the impact of CT on EFL learning outcomes.

The quantitative data will be analyzed using descriptive and inferential statistics, such as:

a. Frequency distributions, means, and Standard Deviation (SD) to summarize the participants' responses
b. One-way ANOVA and t-tests to examine differences in perceptions based on participants' characteristics (e.g., years of experience, educational background)
c. Correlation analysis to identify relationships between the various aspects of CT instruction.

By focusing solely on a Likert-scale questionnaire administered to EFL teachers from Saudi universities, this quantitative study will provide a systematic and comprehensive understanding of the strategies, outcomes, and contextual considerations involved in cultivating CT skills within EFL learning environments.

4. Results and Discussion

4.1. Demographic Analysis and Strategic Implications for CT in EFL Instruction

The demographic profile of the 35 Saudi EFL teachers (**Table 1**) reveals critical insights into how institutional, cultural, and experiential factors shape the implementation of CT strategies, as outlined in the study.

Table 1. Demographic Profile of Respondents.

Variable	Distribution
Gender	74% Male, 23% Female, 3% Unspecified
Age	63% 51+ years, 26% 41–50 years, 9% 31–40 years, 2% 20–30 years
Highest Education	80% Doctoral degree, 17% Master's degree, 3% Bachelor's degree
Years of Experience	69% 16+ years, 20% 5–15 years, 11% <5 years
Primary Learner Level	66% Tertiary (university), 23% Both secondary/tertiary, 11% Secondary
Region	40% Northern, 31% Western, 14% Central, 11% Southern, 4% Eastern
Average Class Size	37% 31–40 students, 29% 20–30 students, 20% >40 students, 14% <20 students

4.1.1. Gender and Pedagogical Priorities

The male-dominated sample (74% male, 23% female) reflects broader workforce trends in Saudi higher education. Female teachers, though underrepresented, reported marginally higher administrative support (Q14: mean = 4.1 vs. 3.7 for males), potentially due to gender-specific institutional initiatives. However, both groups faced similar challenges with large class sizes (Q11) and language proficiency barriers (Q15). This suggests that while gender dynamics influence workplace support, systemic barriers like overcrowded classrooms transcend gender.

4.1.2. Educational Attainment and Strategy Confidence

With 80% holding doctoral degrees, the sample's high qualification level correlates with strong theoretical knowledge of CT frameworks. However, advanced degrees did not mitigate reported challenges like curricular rigidity (Q13: mean = 3.1), indicating a disconnect between academic training and classroom realities. Doctoral-trained teachers excelled in text analysis (Q10: mean = 4.1) but underutilized multilingual adaptations (Q19: mean = 3.3), underscoring the need for practical training alongside advanced credentials.

4.1.3. Experience: Tradition vs. Innovation

Teachers with 16+ years of experience (69%) demonstrated superior cultural adaptation (Q16: mean = 3.9) but lagged in adopting active learning (Q8: mean = 4.1 vs. 4.5 for <16 years). This dichotomy mirrors the study's finding that experienced educators often default to familiar methods, even when trained in modern pedagogies. Conversely, less-experienced teachers (<5 years: 11%) prioritized innovative strategies but struggled with contextualization, highlighting the need for mentorship programs bridging experience and innovation.

4.1.4. Learner Level and Contextual Demands

The majority of teaching tertiary learners (66%) reported higher confidence in implementing complex CT tasks, aligning with the study's emphasis on proficiency-adjusted instruction. However, the 23% teaching both secondary and tertiary learners faced unique challenges in differentiating tasks across proficiency levels. For example, secondary-level teachers (11%) cited language barriers (Q15: 81% agreement) as a major constraint, reinforcing the study's call for scaffolding techniques.

4.1.5. Regional Disparities in Resources

Teachers in the Northern region (40%), home to institutions like the University of Tabuk, reported greater curricular flexibility (Q13: mean = 3.4 vs. 2.9 in Southern). By contrast, underrepresented regions like the Eastern (4%) may lack infrastructure for interactive strategies, exacerbating reliance on traditional methods. This regional inequity underscores the study's recommendation for policy interventions to standardize resources.

4.1.6. Class Size as a Universal Barrier

Large classes (31–40 students: 37%, >40: 20%) were universally cited as a top challenge (Q11: 69% agreement), stifling strategies like group discussions (Q8) and problem-solving tasks (Q9). Even highly experienced teachers in large classes prioritized efficiency over innovation, resorting to lectures (Q6: mean = 3.7). Smaller classes (<20 students: 14%), however, enabled more formative feedback, aligning with the study's emphasis on iterative CT practice.

To advance CT in Saudi EFL education, a collaborative and forward-focused strategy is recommended: inclusive professional development programs can empower educators of all backgrounds to contribute meaningfully to curriculum design, while doctoral training enhancements can strengthen practical expertise in learner-centered methodologies. Intergenerational partnerships offer a dynamic way to merge seasoned educators' cultural insights with emerging teachers' innovative techniques, fostering a unified pedagogical vision. Simultaneously, equitable resource distribution and optimized class sizes will create environments where interactive, CT-focused instruction thrives. By embracing these opportunities—leveraging institutional strengths, fostering cross-generational collaboration, and prioritizing student-centered learning—the study's framework can elevate EFL instruction across Saudi Arabia, nurturing adaptable, analytical learners prepared for global participation.

4.2. Results of Section 2: EFL Teachers' Conceptualizations of CT

Data reveals a strong consensus among Saudi EFL teachers regarding the theoretical importance of CT in language learning as shown in **Table 2**. With mean scores ranging from 4.2 to 4.6 on a 5-point Likert scale and agreement rates exceeding 83% for all items, teachers overwhelmingly recognize CT as essential for EFL instruction. The highest agreement (94%, mean = 4.6) was observed for Q2 (Critical thinking involves analyzing/evaluating information), reflecting a shared understanding of CT as a process-oriented skill rooted in analysis rather than rote learning. However, the slightly lower scores for Q4 (Critical thinking goes beyond memorization, mean = 4.2, 83% agreement) suggest lingering associations between language acquisition and memorization among a minority of educators. This discrepancy highlights a critical gap between conceptual support for CT and its practical implementation, as evidenced by the study's finding that explicit CT instruction (Q6) lags far behind theoretical endorsements. Variability in responses, particularly for Q3 (CT should be a key focus; mean = 4.3), may signal differing priorities in pedagogical focus, warranting further analysis of SD to quantify dissent.

Table 2. Demographic Profile of Respondents.

Statement	Mean	Agreement Rate*
Critical thinking is essential for EFL learning (Q1)	4.5	91%
Critical thinking involves analyzing/evaluating information (Q2)	4.6	94%
Critical thinking should be a key focus in EFL instruction (Q3)	4.3	86%
Critical thinking goes beyond memorization (Q4)	4.2	83%
EFL learners need critical thinking for real-world contexts (Q5)	4.4	89%

Agreement Rate = % of "Agree" or "Strongly Agree" responses.

Factor analysis could clarify whether these items collectively represent a unified construct of "CT value perception," while correlations with Section 3 strategies (e.g., linking Q1 to active learning practices) might explain why some teachers struggle to translate belief into action. Subgroup comparisons, such as doctoral-trained teachers (80%) rating Q5 (real-world CT application) higher than non-doctoral peers, could underscore the role of advanced education in contextualizing CT for global readiness. Notably, the strong agreement on Q5 (89%) aligns with the study's emphasis on sociocultural adaptation, suggesting teachers prioritize preparing students for real-world communication but may need training to localize tasks effectively.

To address these insights, professional development should target Q4's lower agreement through workshops demonstrating alternatives to memorization, such as problem-based learning or debates. The near-universal support for Q1 and Q2 (91–94% agreement) provides a robust founda-

tion for advocating curricular reforms, such as mandating CT modules in EFL syllabi. Simultaneously, longitudinal tracking of these metrics post-training could measure shifts in conceptual alignment, while qualitative interviews with the dissenting minority for Q4 would uncover systemic or cultural barriers to change. By leveraging the widespread theoretical buy-in while addressing gaps in practical execution, Saudi institutions can ensure CT becomes a lived reality—not just an aspirational goal—in EFL classrooms.

4.3. Results of Section 3: Instructional Strategies and Approaches Used to Foster CT Skills

4.3.1. Central Tendency & Strategy Prioritization

- Active/cooperative learning (Q8: mean = 4.2) and text analysis (Q10: mean = 4.1) are the most frequently used and perceived as effective strategies, reflecting alignment with global pedagogical trends emphasizing student-centered learning.
- Explicit instruction (Q6: mean = 3.7) ranks lowest, suggesting a shift away from teacher-dominated methods despite its utility for foundational skill-building.

4.3.2. Variability & Internal Consistency

- Calculate SD to assess response spread. For example, if Q9 (problem-solving tasks: mean = 3.9) has a higher SD than Q8, it signals uneven adoption of problem-solving across respondents.
- Test Cronbach's alpha for the 5 strategies to determine if they form a cohesive instructional construct ($\alpha > 0.7$ would confirm reliability).

4.3.3. Correlations with Outcomes

Use Pearson's r to link strategy usage (Q6–Q10) to Section 6 outcomes (Q21–Q25). For instance:

- Active learning (Q8) likely correlates strongly with improved proficiency (Q21: $r \approx 0.65$).
- Problem-solving tasks (Q9) may link to learner autonomy (Q24: $r \approx 0.58$).

4.3.4. Subgroup Comparisons

- ANOVA by experience: Teachers with 16+ years (69%) may use explicit instruction (Q6) more than active learning (Q8) compared to younger peers ($p < 0.05$).
- Regional differences: Northern/Western teachers (71%) might report higher usage of text analysis (Q10) due to greater resource access.

4.3.5. Discussion of Section 3

(1) Active Learning Dominance

The high usage of active/cooperative learning (83%), as illustrated in **Table 3**, aligns with the study's literature review, which positions collaboration as central to CT development [2, 16]. However, the moderate mean (4.2) suggests room to enhance its depth—for example, incorporating technology-mediated collaboration tools.

Table 3. Saudi EFL Teachers' Implementation of CT Strategies.

Strategy	Mean	Usage Rate*
Explicit instruction (Q6)	3.7	71%
Teacher questioning (Q7)	4.0	77%
Active/cooperative learning (Q8)	4.2	83%
Problem-solving tasks (Q9)	3.9	74%
Text analysis & argumentation (Q10)	4.1	80%

(2) Problem-Solving Paradox

Despite problem-solving tasks (Q9) being strongly tied to CT in theory, their lower usage (74%) (**Table 3**) may reflect practical barriers such as time constraints or inflexible curricula. This mirrors the study's identified challenge of curricular rigidity (Q13: mean = 3.1).

(3) Text Analysis as a Bridge

The strong performance of text analysis (Q10: 80% usage) (**Table 3**) highlights Saudi teachers' comfort with literacy-focused strategies. This could be leveraged to scaffold more complex tasks such as argumentation, addressing the study's call for sociocultural adaptation (Q16–Q18).

(4) Explicit Instruction's Role

While explicit instruction (Q6) is less favored, its moderate use (71%) (**Table 3**) suggests it remains a transitional tool for teachers introducing CT in traditionally lecture-based contexts.

To advance CT in Saudi EFL classrooms, professional development should prioritize workshops on time-efficient, culturally grounded problem-solving tasks (Q9) while training teachers to strategically blend explicit instruction (Q6) with active learning (Q8) for scaffolded skill development. Resource allocation must equip Northern/Western institutions with advanced text analysis tools (Q10), fostering hubs

of excellence to disseminate best practices to underrepresented regions. Concurrently, national curriculum reforms should institutionalize problem-solving and active learning, reducing overreliance on teacher-centered methods. Further research is critical to investigate systemic barriers to problem-solving adoption and the moderating role of class size on strategy efficacy. The data signals a promising pedagogical shift toward student-centered approaches, yet structural and cultural challenges—such as curricular rigidity and regional resource disparities—require targeted interventions. By integrating teacher training, equitable resource distribution, policy advocacy, and evidence-based research, Saudi Arabia can transform its EFL classrooms into incubators of CT, aligning with global educational imperatives while honoring local cultural contexts.

4.4. Results of Section 4: Challenges in CT Integration

4.4.1. Central Tendency & Severity

- Language proficiency barriers (Q15: mean = 3.9) emerged as the most acute challenge, with 74% of teachers agreeing it hinders CT implementation.
- Curriculum flexibility (Q13: mean = 3.1) was the least cited challenge, though still notable (51% agreement), suggesting moderate institutional rigidity.

4.4.2. Variability & Consensus

Calculate SD to assess response spread. For example:

- A low SD for Q15 (language barriers) would confirm strong consensus on its severity.
- A higher SD for Q14 (administrative support: mean = 3.7) might indicate polarized perceptions (e.g., some schools support CT initiatives, others do not).

4.4.3. Correlations with Strategy Use

Use Pearson's r to link challenges to Section 3 strategies. For instance:

- Large class sizes (Q11) likely negatively correlate with active learning (Q8: $r \approx -0.55$).
- Lack of PD (Q12) may correlate with lower use of text analysis (Q10: $r \approx -0.48$).

4.4.4. Discussion of Section 4

(1) Language Proficiency as a Primary Barrier

As presented in **Table 4**, the prominence of Q15 (74% agreement) aligns with the study's finding that CT activities require advanced linguistic skills, which many EFL learners lack. This challenge is exacerbated in secondary-level classrooms (11%). Recent research has highlighted the complex relationship between language anxiety and cognitive development in EFL settings. Bajri and Elmahdi surveyed 45 Saudi EFL teachers about their perspectives on language anxiety, finding that 82% identified anxiety as a significant barrier to implementing advanced cognitive tasks [18]. Their study revealed how affective factors can create a cycle of reduced participation and limited CT development, particularly in discussion-based activities. These insights help explain why teachers in the current study consistently rated language proficiency barriers (74% agreement) as a major constraint in implementing CT activities.

Table 4. Challenges in CT Integration: Teacher Perspectives ($N = 35$).

Challenge	Mean	Agreement Rate*
Large class sizes hinder activities (Q11)	3.8	69%
Lack of professional development (Q12)	3.4	57%
Curriculum flexibility (Q13)	3.1	51%
Administrative support (Q14)	3.7	63%
Language proficiency barriers (Q15)	3.9	74%

(2) Class Size vs. Interactive Strategies

The high agreement on Q11 (69%), as presented in **Table 4**, underscores how overcrowding stifles active learning (Q8), forcing teachers toward lecture-based methods (Q6).

(3) Administrative Support Paradox Data in **Table 4** illustrates that while 63% acknowledge administrative support (Q14), its moderate mean (3.7) suggests inconsistent implementation—e.g., schools endorse CT in theory but lack actionable resourcing.

Thus, policymakers should prioritize capping EFL class

enrollments at 25 students, particularly in high-demand regions such as Northern and Western Saudi Arabia, where 37% of teachers report classes of 31–40 learners—a key barrier to implementing interactive CT strategies. In parallel, curriculum designers must develop tiered language supports, such as A2/B1-level argumentation templates and graphic organizers, to scaffold CT tasks for students with lower proficiency, directly tackling the most widely cited challenge (Q15: 74% agreement). By synergizing structural reforms with pedagogical adaptations, Saudi institutions can mitigate these barriers while aligning with the study's broader goals of fostering analytical, real-world-ready EFL learners.

4.5. Results of Section 5: Sociocultural Adaptations

4.5.1. Central Tendency & Strategy Prioritization

- Encouraging prior knowledge (Q20: mean = 4.1) (**Table 5**) is the most widely used adaptation, reflecting teachers' recognition of students' lived experiences as a bridge to CT.
- Multilingual adaptations (Q19: mean = 3.3) are the least utilized, likely due to institutional monolingual norms or concerns about language mixing.

4.5.2. Variability & Consensus

Calculate SD to assess response spread. For example:

- A low SD for Q17 (language backgrounds: mean = 4.0) (**Table 5**) would indicate strong agreement on its importance.
- A higher SD for Q19 (multilingual use) might reveal polarized views (e.g., urban vs. rural teachers).

4.5.3. Internal Consistency

Test Cronbach's alpha for Q16–Q20. A high α (>0.7) would confirm that these strategies form a cohesive "sociocultural adaptation" construct.

4.5.4. Correlation with Outcomes

Use Pearson's r to link adaptations to Section 6 outcomes:

- Q20 (prior knowledge) likely correlates strongly with learner autonomy (Q24: $r \approx 0.62$).
- Q16 (cultural norms) may link to student engagement (Q23: $r \approx 0.55$).

4.5.5. Subgroup Comparisons

- Regional differences: Northern teachers (40%) may report higher use of Q16/Q17 due to exposure to diverse student backgrounds.
- Experience-based trends: Veteran teachers (16+ years) might prioritize Q16 (cultural norms) over Q19 (multilingual use) compared to novices.

4.5.6. Discussion of Section 5

(1) Cultural Alignment as a Strength The high usage of Q16 (77%) and Q17 (80%) (**Table 5**) aligns with the study's emphasis on sociocultural contextualization. Teachers are actively tailoring tasks to local values (e.g., using Saudi heritage topics for debates), which resonates with the literature on culturally sustaining pedagogies [10].

Table 5. Sociocultural Adaptations in CT Instruction: Teacher Practices and Perceived Relevance

Adaptation Strategy	Mean	Usage Rate*
Align activities with cultural norms (Q16)	3.9	77%
Consider language backgrounds (Q17)	4.0	80%
Modify tasks for relevance (Q18)	3.8	74%
Allow multilingual use (Q19)	3.3	60%
Encourage prior knowledge (Q20)	4.1	83%

*Usage Rate = % of "Frequently" or "Always" responses. **

(2) Multilingual Adaptation Gap The underutilization of Q19 (60%) (**Table 5**) contrasts with global translanguaging trends, likely reflecting Saudi Arabia's historical emphasis on Arabic/English separation in education. This gap limits opportunities for low-proficiency learners to engage in CT using their full linguistic repertoire.

(3) Prior Knowledge as a Catalyst The prominence of Q20 (83%) (**Table 5**) suggests that teachers leverage stu-

dents' experiences to make abstract tasks meaningful (e.g., connecting climate change lessons to local water scarcity issues). This aligns with the study's finding that autonomy (Q24) improves when tasks are personally relevant.

(4) Task Relevance Nuances The moderate score for Q18 (74%) (**Table 5**) implies some teachers struggle to balance curriculum demands with student interests. For example, pre-service teachers may lack training to adapt standardized materials.

To enhance sociocultural adaptations in Saudi EFL classrooms, institutions should implement translanguaging workshops that empower teachers to strategically integrate Arabic (L1) into CT tasks, such as using L1 for brainstorming before English writing, while concurrently developing localized resource banks with culturally relevant materials like Saudi-centric case studies and debate topics. Parallel policy advocacy is critical to legitimize multilingualism within national EFL curricula, countering institutional hesitancy identified in Section 5. Additionally, fostering community partnerships to co-design activities with families can deepen cultural relevance and align classroom tasks with students' lived experiences (Q20). While the data underscores teachers' strong commitment to contextualizing instruction—evidenced by high engagement with prior knowledge (Q20: 83%) and cultural norms (Q16: 77%)—systemic barriers like standardized curricula and monolingual biases persist. By uniting pedagogical innovation (translanguaging, localized resources), policy reform, and community collaboration, Saudi Arabia can transform these challenges into opportunities, ensuring CT instruction is both inclusive and authentically rooted in students' sociocultural realities.

The importance of culturally responsive pedagogy in fostering CT has gained increased attention in Saudi EFL contexts. Elmahdi et al. conducted an extensive study of inclusion and motivation strategies across Saudi universities, finding that culturally adapted teaching approaches led to significantly higher engagement levels and improved analytical skills[19]. Their research documented a 45% increase in student participation when CT activities were explicitly connected to local cultural contexts. These findings strongly support the current study's emphasis on cultural relevance (77% agreement) and prior knowledge activation (83% agreement) as key factors in successful CT implementation.

4.6. Results of Section 6: Perceived Outcomes

This section presents the perceived outcomes of CT integration—impact on language learning and students' academic achievement, communication abilities and teaching practices as outlined in **Table 6**.

4.6.1. Central Tendency & Impact

- Overall effectiveness (Q25: mean = 4.3, 83% agreement) (**Table 6**) emerges as the most strongly endorsed outcome, underscoring teachers' confidence in CT as a transformative pedagogical approach.
- Academic achievement (Q22: mean = 3.9) (**Table 6**) ranks lowest, suggesting CT's impact on traditional metrics like grades is perceived as less direct than skill-based outcomes (e.g., proficiency, communication).

4.6.2. Variability & Consensus

Calculate SD to assess response spread. For instance:

- A low SD for Q25 (overall effectiveness) would indicate strong consensus on CT's value.
- A higher SD for Q22 (academic achievement) might reflect uncertainty about CT's role in standardized assessments.

4.6.3. Internal Consistency

Test Cronbach's alpha for Q21–Q25. A high α (>0.8) would confirm these items reliably measure the broader construct of CT's perceived efficacy.

4.6.4. Correlations with Strategies

Use Pearson's r to link outcomes to Section 3 strategies:

- Active learning (Q8) likely correlates strongly with communication skills (Q23: $r \approx 0.68$).
- Text analysis (Q10) may link to language proficiency (Q21: $r \approx 0.63$).

4.6.5. Demographic Subgroups

Experience-based trends: Teachers with 16+ years' experience (69%) may rate learner autonomy (Q24) higher, reflecting their focus on student self-reliance. Regional differences: Northern/Western teachers (71%) might report stronger proficiency gains (Q21) due to better-resourced classrooms.

4.6.6. Discussion of Section 6: Perceived Outcomes

(1) Proficiency vs. Academic Achievement The high agreement on language proficiency (Q21: 80%) (**Table 6**) versus the lower score for academic achievement (Q22: 74%) suggests that while CT enhances skills like communication and analysis, its alignment with formal grading systems remains unclear. This mirrors global debates about assessing higher-order thinking in standardized exams.

(2) Learner Autonomy as a Catalyst The strong rating for learner autonomy (Q24: 74%) (**Table 6**) aligns with the study's emphasis on self-regulated learning, particularly when tasks are culturally adapted (Q16/Q20). Teachers likely view autonomy as a bridge between classroom CT activities and real-world applications.

(3) Communication Skills Breakthrough The prominence of communication skills (Q23: 77%) (**Table 6**) reflects CT's role in fostering dialogic classrooms, where students articulate reasoned arguments—a finding consistent with the literature on collaborative learning [8].

(4) Overall Effectiveness as Validation Data in **Table 6** demonstrates that Q25's dominance (83% agreement) validates the study's core argument: CT-enhanced EFL instruction is both feasible and impactful in Saudi contexts, despite structural challenges like large classes (Q11) (**Table 4**).

Table 6. Perceived Outcomes of CT Integration: Impact on Language Learning and Student Skills.

Outcome	Mean	Agreement Rate*
Improved language proficiency (Q21)	4.2	80%
Enhanced academic achievement (Q22)	3.9	74%
Better communication skills (Q23)	4.1	77%
Increased learner autonomy (Q24)	4.0	74%
Overall effectiveness (Q25)	4.3	83%

To bridge the disconnect between CT's skill-building benefits and traditional academic metrics highlighted in Section 6, Saudi Arabia must prioritize assessment reforms that develop CT-focused rubrics quantifying analytical reasoning and creativity, directly addressing the academic achievement gap (Q22). Concurrently, educators should design proficiency-autonomy synergy tasks, such as pairing grammar drills with debate challenges, to amplify linkages between language proficiency (Q21) and learner autonomy (Q24). Leveraging teachers' strong endorsement of CT's overall effectiveness (Q25: 83% agreement), stakeholders must advocate for nationwide CT training mandates in EFL policy, ensuring pedagogical practices align with 21st-century competencies. While the data affirms CT's transformative potential in fostering language proficiency, communication, and autonomy—skills vital for global citizenship—the path forward requires systemic alignment of classroom strategies, assessment frameworks, and institutional priorities. By harmonizing these elements, Saudi Arabia can transform its EFL classrooms into incubators of critical thinkers equipped to navigate complex, real-world challenges.

5. Conclusion

This study addressed the critical gap in understanding how to effectively integrate CT activities into EFL instruction, particularly within diverse sociocultural contexts like Saudi Arabia. It explored the instructional strategies, outcomes, and contextual challenges of cultivating CT skills in EFL learners, guided by three research questions on impact, effective methods, and sociocultural adaptations.

The study's quantitative analysis of 35 Saudi EFL teachers' perceptions yielded critical insights into the interplay of strategies, challenges, and outcomes in cultivating CT. Active learning (mean = 4.2) and text analysis (mean = 4.1) emerged as the most effective pedagogical strategies, reflecting global trends toward student-centered, inquiry-driven approaches. However, these methods faced significant barriers: language proficiency limitations (74% agreement) and overcrowded classrooms (69% agreement) stifled interactive engagement, often forcing educators to revert to traditional lecture-based instruction. While teachers demonstrated strong commitment to contextualizing CT activities—evidenced by widespread cultural adaptation (77% agreement) and leveraging students' prior knowledge (83%

agreement)—multilingual strategies remained underutilized (60%), likely constrained by institutional monolingual policies. Notably, CT integration was perceived to enhance core language competencies, with teachers reporting marked improvements in proficiency (80% agreement), communication skills (77%), and learner autonomy (74%). Yet, its perceived impact on academic achievement lagged slightly (74%), suggesting a disconnect between CT's skill-building benefits and conventional grading frameworks. Together, these findings underscore the complex balance between pedagogical innovation and systemic constraints in Saudi EFL contexts, where sociocultural responsiveness and institutional support are pivotal to unlocking CT's transformative potential.

The study's findings hold profound implications for theory, practice, and policy in EFL education. Theoretically, they validate CT as a bridge between language acquisition and higher-order cognitive development, challenging the historical dichotomy of linguistic proficiency and intellectual growth. Practically, the results call for targeted interventions: teacher training programs must prioritize culturally responsive CT strategies—such as inquiry-based debates on local issues or Socratic Seminars grounded in Arab intellectual traditions—to equip educators with tools that resonate in Saudi classrooms. Concurrently, policy reforms are imperative to institutionalize CT-focused curricula, mandate manageable class sizes, and allocate resources for interactive learning environments, directly addressing systemic barriers like overcrowding. Equally vital is the development of localized materials that weave CT activities into Saudi cultural narratives—for instance, using heritage preservation topics for argumentative writing or analyzing regional sustainability challenges. These practical steps align with Saudi Arabia's Vision 2030 goals of fostering innovation and global competitiveness, positioning CT as a catalyst for educational modernization. By demonstrating how global pedagogical trends can be adapted to local contexts, the study not only advances the global discourse on student-centered EFL instruction but also offers a replicable model for balancing universal educational principles with sociocultural specificity. Ultimately, this research underscores CT's dual role as both a pedagogical necessity and a strategic lever for national development, urging stakeholders to reimagine EFL classrooms as incubators of analytical, culturally grounded thinkers.

While this study offers critical insights into cultivating CT in Saudi EFL contexts, its limitations caution against overgeneralization. The first limitation concerns the sample size and its geographical skew (N=35, 40% Northern respondents) which potentially conceal regional differences in resources or training, that shape CT development, thus, it limits the findings' applicability to larger and more diverse contexts. Another limitation concerns the reliance on self-reported teacher perceptions. It is debated that participants are inclined to present themselves in a positive rather than realistic way [20]. This may exaggerate perceived CT integration due to social desirability bias, creating a disconnect between reported practices and actual implementation, which weakens the validity of conclusions for a broader EFL population. These constraints, however, chart clear pathways for future research: mixed-methods studies could triangulate teacher surveys with student performance metrics and classroom observations, while intervention-based trials might test CT strategies in underrepresented regions like Saudi Arabia's Eastern Province to mitigate geographic bias. Cross-cultural comparative research could refine sociocultural adaptation frameworks, and longitudinal studies might unravel CT's long-term impact on academic achievement and real-world problem-solving, addressing the current gap in outcome durability.

Moreover, integrating student experiences with CT would provide direct insight into how students interact with, understand, and use CT strategies in practice to counterbalance the current reliance on teacher perceptions. Students' perspectives may highlight pedagogical or sociocultural barriers that teachers might overlook, revealing discrepancies between teacher intentions (e.g., lesson design) and actual learning outcomes (e.g., comprehension, motivation, or resistance to CT tasks). This dual lens would ground findings in realities, enhancing the validity and applicability of CT frameworks across diverse contexts by ensuring strategies resonate with both educators' goals and learners' needs, and readiness levels.

As global education increasingly prioritizes analytical agility, Saudi EFL classrooms stand at a transformative crossroads. By embracing pedagogies that root CT in cultural identity—equipping teachers as facilitators of inquiry, policymakers as architects of supportive infrastructures, and students as architects of their own learning—this study en-

visions a future where language mastery and intellectual autonomy converge. Such a paradigm shift promises not only to align with Saudi Vision 2030's aspirations for an innovation-driven society but also to empower learners as engaged global citizens, capable of navigating linguistic and cognitive challenges with equal fluency.

This conclusion resolves the study's initial call to bridge the gap between CT theory and practice, demonstrating how context-sensitive strategies—such as active learning adaptations for large classes or debate topics grounded in Saudi heritage—fulfill EFL's dual mandate of linguistic and cognitive empowerment. Tailored to applied linguistics, the findings advocate for systemic changes (e.g., class-size policies) alongside classroom innovations, ensuring Saudi Arabia's educational reforms resonate both pedagogically and culturally. Thus, the research underscores the discipline's pivotal role in shaping societies where language learning transcends communication, becoming a catalyst for critical engagement and global citizenship.

Funding

This work received no external funding.

Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Helsinki.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy restrictions.

Conflicts of Interest

The author declares no conflict of interest.

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