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RESEARCH ARTICLE

Attainment of Critical Thinking Aims through the English Curriculum: A Study from Jeddah, Saudi Arabia

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ABSTRACT

Scholars in education universally recognize the pivotal role of critical thinking in individuals' lives, particularly in their academic endeavors. This study investigated the efficacy of integrating creativity and innovation into the educational curriculum, specifically focusing on English textbooks for Foreign Learners (EFL), to foster critical thinking among youth in Jeddah, Saudi Arabia. The intervention involved the use of English textbooks enriched with creative thinking activities such as brainstorming, problem-solving, and role-playing to determine how this integration affects students' critical thinking and what helps or prevents it. A single-group pretest-posttest design was employed, with a sample size of 56 EFL college students. These students engaged with the enriched textbooks over a specified treatment period of one academic semester. A standardized critical thinking skills assessment, the Critical Thinking Self-Assessment Scale (CTSAS), developed by Nair (2011), was administered before (pre-test) and after (post-test) the intervention to both groups. Statistical analysis compared the changes in critical thinking skills, revealing a significant improvement among students in the creative thinking activities group compared to the control. Moreover, the qualitative data collected through teacher interviews not only shed light on student engagement and learning experiences but also underscored the effectiveness of integrating creative thinking activities within the English curriculum. These findings, which demonstrate the tangible benefits of such integration in enhancing critical thinking skills amid EFL students in Saudi Arabia are of immense value to educators and curriculum developers. They provide a solid foundation for designing and implementing curriculum interventions aimed at fostering critical thinking skills within English language learning contexts, empowering these professionals with actionable insights.

INTRODUCTION

Critical thinking, a skill of paramount importance in the 21st century, has garnered significant attention across various levels and cannot be overlooked or underestimated. The literature on critical thinking examines this concept from different angles. Critical thinking processes, as outlined by (Jendli and Albarakati, 2024; Suwono et al., 2018), involve the analysis of problems, formulation of arguments, evaluation, decision-making, and problem-solving (Johnson, 2011). It also can be described as a systematic approach enabling individuals to assess the evidence, assumptions, and reasoning behind their own and others' viewpoints, fostering a profound comprehension with potential future ramifications (Alghamdi, 2023; Facione et al., 2015; Fajari et al., 2020a). Given the widespread access to vast amounts of information globally, there's an urgent demand for nurturing critical thinkers capable of scrutinizing information, interpreting data, assessing resources, and making well-founded decisions. Across all fields, there's unanimous agreement on the indispensability of critical thinking in contemporary education. Enhancing critical thinking abilities should stand as the foremost educational objective in all kinds of education. In the dynamic landscape of global education, the cultivation of critical thinking skills is acknowledged as a fundamental prerequisite for preparing students to thrive in an ever-evolving knowledge economy (Duron et al., 2017; Ismail and Heydarnejad, 2023; Paul and Elder, 2006; Rashid et al., 2023). The Kingdom of Saudi Arabia (KSA), like many nations, recognizes the pivotal role of creativity and innovation in propelling societal development (Aljohani, 2018; Kongmanus, 2016; Rashid, 2020). As the academic community strives to align curricula with the demands of the 21st century, the integration of creativity and innovation into educational frameworks becomes a pertinent subject of exploration (Alghanmi, 2023; God'spower, 2017; Jam et al., 2011). This study delves into the multifaceted relationship between critical thinking, creativity, and innovation within the English curriculum of higher education institutions in Jeddah, KSA.

Amid the global discourse on education reform, the significance of fostering critical thinking skills is underscored by scholars such as Bailin (2003), who emphasize the necessity of instilling intellectual virtues and habits of mind that enable individuals to analyze, synthesize, and evaluate information effectively. Critical thinking is not only vital for academic success but also serves as a catalyst for innovation and problem-solving in real-world contexts (Bailin, 2023; Abrami et al., 2008). Furthermore, the shift towards knowledge-based economies necessitates a departure from traditional instructional paradigms towards a more interactive and interdisciplinary approach that nurtures creativity and innovation (OECD, 2018; Al-Mwzaiji and Muhammad, 2023).

Saudi Arabia, in its Vision 2030 initiative, articulates a commitment to fostering a knowledge-based economy by nurturing a generation equipped with critical thinking skills (Alshahrani and Jones, 2019; Mohammed Taher Qutub et al., 2023). Jeddah, as a key educational hub within the country, is emblematic of these aspirations. The city is home to diverse higher education institutions, contributing to the academic and intellectual growth of its youth. However, investigating the impact to which creativity and innovation are integrated into the English curriculum remains an empirical question. This study seeks to address this impact by examining the critical thinking enhancement through intervention of creativity and innovation presented in English curriculum with the special focus of English text book of students in Jeddah regarding their engagement in creative thinking activities and the adequacy of innovation training within the university setting (Alkhalil, 2023). In constructivism, learners actively shape their worldview through environmental interactions. It emphasizes hands-on learning, teamwork, and reflection. Tools and engaging situations facilitate constructivist learning. Interactive exercises and educational software simulations teach complex concepts. Forums and discussion boards help students learn and collaborate. Since culture and social interactions affect knowledge, constructivism emphasizes social learning (Mohammed Taher Qutub et al., 2023). Technology can help educators create dynamic peer-to-peer learning environments that encourage critical thinking and problem-solving. Tech increases English class participation. Student

ideas can be shared via text, photo, and video using digital storytelling tools. Students edit and evaluate writing assignments online in real time. Collaboration enhances students' creativity, critical thinking, and subject understanding. Englisch technology lets teachers customize lessons for pupils' learning patterns. Adjustable learning platforms modify difficulty and speed based on student performance. Students govern themselves with individualized learning. Technology-based constructivist learning can improve creativity, critical thinking, and English proficiency and prepare students for a digital society (Mohammed Taher Qutub et al., 2023; Jendli and Albarakati, 2024; Almansour, 2023).

In recent years, numerous studies have emphasized the pivotal role of technology in shaping educational practices and fostering creativity (Barak, 2018; Voogt et al., 2013; Voogt et al., 2024). The incorporation of technology tools and techniques in education is posited to be a key factor in enhancing students' creativity and innovative thinking (Wang et al., 2004). Despite this acknowledgment, challenges such as resistance to change and limited access to information have been identified as potential impediments to realizing the full potential of creativity and innovation in educational contexts (Almansour, 2023; Fullan, 2007; Hargreaves and Shirley, 2009). Understanding and addressing these challenges are crucial steps towards devising effective strategies to integrate creativity and innovation into the English curriculum in the Applied college, Jeddah (Amoudi and AlShawwa, 2023).

This study found that creative English curriculum increases critical thinking. Creative and innovative English language learning research is scarce in Jeddah. This study examines English language students' critical thinking after integration. Jeddah English texts are assessed for teaching critical thinking through creativity and innovation. Critical thinking instruction requires thorough content review. The report recommends adding English language curriculum to prepare pupils for academic and professional success. This study explores curriculum materials and potential barriers to creativity and innovation in the Applied College in Jeddah English curriculum. Teacher opposition, technology availability, and creative-killing educational practices are studied. For creative and innovative English language teaching, the study tackles these challenges. Results of the investigation may affect society. These findings can enhance English language education to foster critical thinking, creativity, and innovation. Meeting Vision 2030's aims makes the study important to knowledge-based economy and 21st-century job education discussions. The poll may showcase Jeddah and global English language teachers' creativity. Study examines research gaps, instructional materials, and education and student critical thinking issues.

As the study unfolds, it will not only contribute to the local discourse on educational practices but also offer insights and implications for global educational frameworks striving to align with the demands of a rapidly changing world (Alghamdi, 2023). By examining the nexus between critical thinking, creativity, and innovation in the specific context of English curriculum, this research endeavors to inform policy, pedagogy, and curriculum development in higher education institutions, aligning them with the imperatives of a knowledge-driven future.

LITERATURE REVIEW

Sub-skills of critical thinking
Critical thinking comprises of many sub-skills. The American Psychological Association (APA) panel reached a consensus on the fundamental critical thinking skills. Expanding on this agreement, Facione (1990) crafted a framework comprising six essential skills, which form the essence of critical thinking. For a more comprehensive grasp of these skills, Facione further subdivided each into sub-skills.

Interpretation and understanding
Interpretation is the ability to "comprehend and express the meaning or significance of a wide variety of experiences, situations, data, events, judgments, conventions, beliefs, rules, procedures, or criteria (Facione et al., 2011, p 5)."

Applying
After studying a text, we utilize the acquired information by applying it to various tasks, such as answering comprehension questions or filling in tables with facts or figures from the text. Essentially, it involves task completion using the newly comprehended information (Butt et al. 2023; Jendli and Albarakati, 2024).

Analysis

Analysis requires the ability "to identify the intended and actual inferential relationships among statements, questions, concepts, descriptions, or other forms of representation intended to express belief, judgment, experiences, reasons, information, or opinions." It contains three subskills: examining ideas, detecting arguments, and analyzing arguments (Facione, 1990, pp. 14-15).

Evaluation

As the panel of experts defined it, evaluation is the ability to "assess the credibility of statements or other representations which are accounts or descriptions of a person's perception, experience, situation, judgment, belief, or opinion; and to assess the logical strength of the actual or intended inferential relationships among statements, descriptions, questions or other forms of representation." It includes two sub-skills: assessing claims and assessing arguments (Facione, 1990, pp. 15–16).

Creating

Creating marks the final of the five sub-skills. After exploring a subject through drawing on multiple texts, students must apply their newfound knowledge to generate original work.
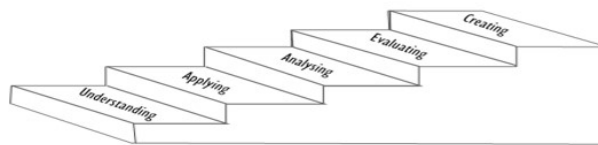

Figure 1: Sub-skills of critical thinking

While the definitions may appear appealing and encouraging in their portrayal of features, the abilities outlined within them are not readily translatable into convenient gadgets for individual use. In this regard, Paul and Elder (2006) claim that the cultivation of critical thinking doesn't occur suddenly. It's a prolonged process that spans years to fully develop.

Table 1: Development stages of critical thinking

	Stage	Description
1	The Unreflective Thinker	Individuals are not conscious of significant problems in their thinking process.
2	The Challenged Thinker	Awareness of problems in thinking arises, prompting individuals to recognize areas for improvement.
3	The Beginning Thinker	Efforts to enhance thinking are made, although without consistent practice or methodology.
4	The Practicing Thinker	Recognition of the importance of regular practice in improving thinking skills is acknowledged.
5	The Advanced Thinker	Progress is made through consistent practice, leading to improvements in critical thinking abilities.
6	The Master Thinker	Critical thinking becomes ingrained as individuals develop advanced and insightful thinking skills.

Source: Paul and Elder (2006) critical thinking.

Critical thinking in curriculum

Critical thinking stands as a cornerstone in contemporary education, recognized as an indispensable skill essential for navigating the complexities of the information-rich environment that characterizes the modern world. Rooted in the ability to question, analyze, and interpret information, critical thinking empowers individuals to form informed opinions and make sound decisions (Ismail and Heydarnejad, 2023). This discussion delves into the significance of critical thinking in the curriculum, shedding light on its pivotal role in equipping students to navigate diverse information sources, discern inconsistencies, validate data, and distinguish between facts and interpretations (Almansour, 2023). Recent scholarly discourse emphasizes the paramount

importance of critical thinking skills in educational frameworks (Mohammed Taher Qutub et al., 2023). Facione et al. (2015) elucidates the multifaceted nature of critical thinking, encompassing skills such as interpretation, analysis, evaluation, inference, explanation, and problem-solving. The integration of these skills into curricula is seen as crucial for preparing students not only for academic success but also for addressing real-world challenges (Paul and Elder, 2019). As students are exposed to a deluge of information from various sources, the ability to critically evaluate and discern the reliability of information becomes a vital competency (Nosich, 2017).

In the context of curriculum design, Bailin (2016) advocate for the incorporation of critical thinking as a cross-cutting skill that transcends disciplinary boundaries. They argue that critical thinking should not be confined to specific subjects but should permeate all areas of education, fostering a holistic approach to intellectual development (Mohammed Taher Qutub et al., 2023). This aligns with the contemporary understanding of education as a means of cultivating not only subject-specific knowledge but also transferable skills that empower individuals to adapt to evolving challenges (Duron et al., 2017).

The role of critical thinking in information literacy is paramount, particularly in an era characterized by the proliferation of misinformation and fake news (Hobbs, 2017). Students, armed with critical thinking skills, are better equipped to navigate the complex landscape of information, discerning biases, questioning sources, and validating the reliability of data. The integration of critical thinking into the curriculum becomes a strategic response to the pressing need for individuals to be discerning consumers and producers of information in the digital age (Ting, 2018). Moreover, recent research highlights the correlation between critical thinking skills and academic achievement. A meta-analysis by Abrami et al. (2015) reveals a positive relationship between the development of critical thinking skills and enhanced academic performance across various disciplines. This underscores the argument for the integration of critical thinking into curriculum design as a means of not only fostering intellectual acumen but also improving overall academic outcomes. Critical thinking emerges as a foundational skill with far-reaching implications for education in the contemporary world is the text the book(s). The ability to question, analyze, and interpret information is not only vital for academic success but is also imperative for navigating the complexities of the information age (Tryzna, 2023). However, in this study, National Geographic's Life series is the focus because it embraces a critical thinking approach in its English learning pedagogies. It was selected for the study to assess the degree to which text-based questions and associated tasks facilitated the enhancement of students' critical thinking abilities.
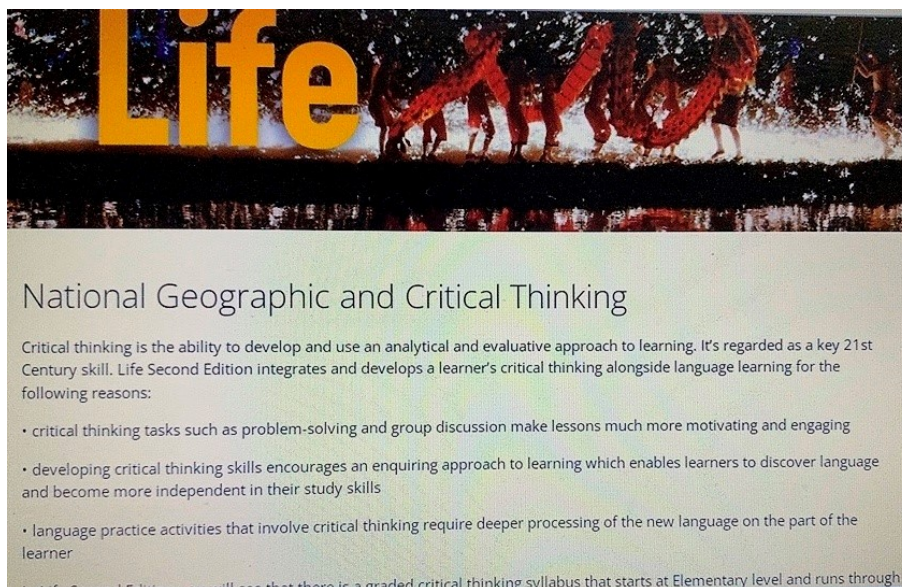

Figure 2: Teaching critical thinking through English book(s)

The Life series activities were structured to require students' comprehension of the phenomenon, prompting them to formulate responses in a few sentences. Figure 2 presents the information in the textbook Life Series by National Geographic.

It shows the multifaceted nature of critical thinking, advocating for its integration across disciplines and emphasizing its role in information literacy and academic achievement. As educational paradigms evolve, the cultivation of critical thinking skills remains paramount in preparing students to thrive in an ever-changing global landscape.

Characteristics of critical thinking

Critical thinking is a multifaceted construct that equips individuals with the cognitive skills to interpret, analyze, and synthesize information effectively. The foundational components of critical thinking, as elucidated in recent scholarly research, include interpretation and analysis, encompassing the understanding of information's meaning and the breakdown of complex concepts (Facione et al., 2015; Ennis, 2015). This skill set is crucial for problem-solving and decision-making.

Evaluation and inference, integral to critical thinking, involve assessing information quality and drawing conclusions based on evidence (Bailin, 2016; Paul and Elder, 2006), contributing to reasoned decision-making. Additionally, critical thinking incorporates problem-solving skills, emphasizing systematic approaches and creative thinking to address challenges (Halpern, 2014). The dispositional aspects of curiosity and open-mindedness encourage exploration, questioning, and receptiveness to diverse perspectives (Paul and Elder, 2006). Metacognition and reflection, integral to critical thinking, involve the awareness and regulation of thinking processes, fostering continuous improvement. In conclusion, recent literature underscores the multifaceted nature of critical thinking, emphasizing interpretation, analysis, evaluation, inference, problem-solving, curiosity, open-mindedness, metacognition, and reflection. These characteristics collectively contribute to the development of individuals capable of navigating complex information environments, making informed decisions, and engaging in thoughtful, reasoned discourse.

Table 2: Characteristics of critical thinking

No.	Indicator		Sub-Indicator
1	Analysis	1.1	Identifying unstated assumptions
		1.2	Identifying logical fallacies
		1.3	Identifying ambiguous claims or arguments
2	Inference	2.1	Distinguishing relevant from irrelevant information, claims, and reasons
		2.2	Distinguishing between verifiable facts and Value claims
3	Evaluation	3.1	Determining factual accuracy of a statement
		3.2	Determining credibility of a source
4	Inductive Reasoning	4.1	Determining the strength of an argument or Claim
		4.2	Detecting bias
5	Deductive Reasoning	5.1	Recognizing logical in consistencies in a line of Reasoning

Source: (Barak, 2018)

Fostering critical thinking skills through diverse activities

Equipping students with critical thinking skills is paramount for their success in navigating an information-rich world. This section explores various engaging activities that educators can incorporate into their curriculum to cultivate critical thinking in students. One effective strategy is to engage students in collaborative problem-solving activities (Itmeizeh and Hassan, 2020). Dividing students

into groups to tackle problems fosters teamwork and hones critical analysis skills. As they work together, students identify the core issues, brainstorm a variety of solutions, and then evaluate the effectiveness of each option. This collaborative process urges students to reason critically, consider diverse viewpoints, and effectively communicate their ideas. By actively participating in discussions and debates, students articulate their own views, consider and analyze opposing viewpoints, and reine their communication skills. Exposing students to a wide range of reading materials and guiding them in critical reading approaches is another impactful strategy (Itmeizeh and Hassan, 2020). By delving into various texts, students develop the ability to extract key information, analyze the arguments presented, and ultimately form their own evidence-based judgments. This equips them to become discerning consumers of information, able to critically evaluate the messages they encounter across different media. Integrating writing exercises across disciplines further strengthens critical thinking skills (Itmeizeh and Hassan, 2020). Tasks such as essays, summaries, and reports require students to critically evaluate information they have encountered. Through writing, they organize their thoughts logically, develop clear arguments, and present their findings in a coherent and articulate manner. This process refines critical thinking skills and strengthens communication abilities, preparing students for success in academic and professional settings (Mohammed Taher Qutub et al., 2023).

Encouraging discussions and debates in the classroom provides another avenue for developing critical thinking (Itmeizeh and Hassan, 2020). By actively participating in discussions and debates, students articulate their own views, consider and analyze opposing viewpoints, and refine their communication skills. This fosters intellectual curiosity, encourages them to reflect critically on complex issues, and hone their ability to effectively present and defend their arguments. Through these discussions and debates, students learn to appreciate the value of diverse perspectives and engage in constructive dialogue.

Speaking activities

Speaking activities are a cornerstone in developing critical thinking skills. Engaging students in verbal communication pushes them to think on their toes, analyze information, and articulate their ideas effectively. This section explores three specific speaking activities that can be implemented in the classroom to cultivate critical thinking in students. One such activity is the information-gap activity (Itmeizeh and Hassan, 2020). This technique pairs students who possess complementary pieces of information, requiring them to collaborate and communicate to complete a task. For instance, one student might have a map while their partner has a set of instructions. By working together, sharing their knowledge, and effectively communicating, they can achieve the desired outcome. This process fosters critical thinking as students analyze the information they have, consider their partner's perspective, and strategically communicate their ideas to reach a solution. Information-gap activities not only develop critical thinking but also hone collaboration and communication skills (Mohammed Taher Qutub et al., 2023).

Another engaging strategy is role-playing activities. By simulating real-world scenarios, students actively participate in situations from various perspectives. This allows them to analyze issues from different viewpoints, consider potential solutions, and develop effective communication skills as they navigate the simulated scenario. For example, students might role-play a historical debate or a scientific experiment. Through role-playing, students not only strengthen critical thinking but also develop social interaction skills and cultivate empathy for diverse viewpoints. Jigsaw activities, developed by Elliot Aronson in the 1970s, offer another avenue for fostering critical thinking. This strategy involves breaking down complex topics into smaller, more manageable parts. Students then delve into their assigned sections independently before coming together in "expert groups" with classmates who studied the same section. Following this exchange of knowledge, they return to their original groups and share their expertise, collaboratively building a comprehensive understanding of the entire topic. Jigsaw activities promote critical thinking as students analyze their assigned information, synthesize it with the knowledge of their peers, and then effectively communicate their understanding to the group. This

collaborative process strengthens critical thinking, analytical skills, and communication abilities (Saati, 2023).

Enhancing critical thinking skills through a multifaceted approach

Equipping students with critical thinking skills requires a multifaceted approach that incorporates various activities beyond speaking and reading. This section will explore the importance of reading assignments, listening activities, and writing tasks, all designed to cultivate critical thinking in students.

Reading assignments and exercises as a springboard for critical thinking

Reading assignments and exercises play a crucial role in developing critical thinking skills (Itmeizeh and Hassan, 2020). By exposing students to various topics and texts, educators can equip them to gather information effectively, analyze its meaning, and form evidence-based judgments. Furthermore, delving into diverse reading materials allows students to hone their analytical skills as they learn to respond critically to complex matters, evaluate topics, and develop reasoning ability. Through this process, students develop the ability to discern valid arguments from fallacies, fostering their ability to create sound judgments based on evidence. Reading exercises further enhance critical thinking by urging students to evaluate and reflect on their own responses, ensuring a deeper understanding of the information encountered.

The power of listening activities in critical thinking development

In addition to reading, incorporating listening activities is another powerful tool for fostering critical thinking skills. Active listening requires students to not only pay attention to the information being presented but also to analyze it critically. Educators can design listening activities that encourage students to identify the speaker's main points, evaluate supporting evidence, and recognize potential biases. Discussions following these listening activities allow students to share their interpretations, consider alternative viewpoints, and refine their critical thinking abilities. By actively engaging with spoken information, students develop the capacity to analyze diverse perspectives, formulate well-reasoned arguments, and effectively communicate their ideas.

Writing tasks: A catalyst for critical thinking

Writing tasks are equally important in the development of critical thinking skills (Itmeizeh and Hassan, 2020). Across various disciplines, academic writing requires students to demonstrate critical thinking abilities. Tasks such as essays, reports, and subject-specific critical thinking portfolios all provide opportunities for students to refine critical thinking skills. Through the process of writing, students synthesize information, organize their thoughts logically, articulate clear arguments, and effectively support their claims with evidence. Furthermore, activities like summarizing and rewriting information can enhance a student's ability to analyze and rationalize complex ideas. The act of revising and editing their work further strengthens critical thinking as students refine their arguments, ensuring clarity and coherence in their communication.

In conclusion, fostering critical thinking skills in students necessitates a comprehensive approach that encompasses reading, listening, and writing activities. By engaging students in these diverse activities, educators can equip them with the tools they need to become discerning consumers of information, effective communicators, and independent thinkers.

Obstacles on the path to critical thinking

Despite the numerous benefits of critical thinking, fostering these skills in students can present certain challenges. This section will explore some of the roadblocks educators may encounter and suggest strategies to overcome them.One common hurdle is the misunderstanding of critique (Cottrell, 2017). Students may misinterpret criticism as negativity, hindering their openness to constructive feedback, which is essential for growth. To address this, educators can emphasize the positive aspects of critique, framing it as a tool for improvement rather than punishment. Highlighting how critical feedback can strengthen their arguments and elevate their work can help students develop a more receptive attitude. Another challenge is the influence of emotions on critical thinking (Cottrell, 2017). Strong emotions can cloud a student's ability to analyze information objectively. Educators can help students navigate this by explicitly teaching strategies for emotional regulation. Techniques such as mindfulness exercises and identifying logical

fallacies can equip students to detach from emotional biases and approach information with a critical lens. A crucial factor in developing critical thinking is the disposition to engage in critical discourse (Cottrell, 2017). Students who are unmotivated or lack confidence may be reluctant to participate in discussions. Encouragement and creating a safe learning environment where diverse perspectives are valued can foster a more active classroom. Strategies such as wait time and using open-ended questions can draw out quieter students and encourage thoughtful participation.

Teaching methods to cultivate critical thinking

Having explored some of the challenges, let's now delve into specific teaching methods aimed at nurturing critical thinking abilities in students. One such method is brainstorming (Al-Samarraie, 2018). This technique encourages open-ended idea generation, fostering creativity and active student participation. By brainstorming in a friendly and safe atmosphere, students feel comfortable sharing a wide range of ideas, no matter how unconventional. This not only ignites critical thinking but also sparks innovation and problem-solving skills.

Another effective strategy is classification and categorization (Shatri and Buza, 2017). Organizing information logically helps students structure their thoughts and improve information retention. By categorizing information, students learn to identify patterns, analyze relationships between concepts, and develop a deeper understanding of the subject matter. This process strengthens critical thinking skills as students actively engage with the information and form connections between different ideas. Equipping students with decision-making skills is another vital aspect of critical thinking. Through activities that involve assessing information, weighing options, and making informed decisions, students develop the critical thinking muscles needed to navigate complex situations. Case studies, simulations, and project-based learning activities can all provide opportunities for students to practice these critical thinking skills in a realistic context.

Finally, collaborative learning plays a significant role in fostering critical thinking. Working in pairs or groups allows students to learn from diverse perspectives, develop communication skills, and practice teamwork. As students engage in discussions, explain their reasoning to their peers, and consider alternative viewpoints, they refine their critical thinking abilities. Collaborative learning fosters a dynamic environment where students can challenge each other's ideas, learn from one another, and ultimately strengthen their critical thinking skills.

Teaching critical thinking in Saudi Arabia: A pressing need

The need for critical thinking skills in Saudi Arabia is particularly noteworthy in the context of Vision 2030, a national transformation program aimed at economic diversification and knowledge-based development (Alharbi, 2019). Several studies have emphasized the importance of fostering these skills within the Saudi Arabian educational system (Ahmed et al., 2023; Butt et al., 2023; Jendli and Albarakati, 2024; Mohammed Taher Qutub et al., 2023). A study by Alsaleh (2020) argues that critical thinking is essential for effective decision-making, a vital skill for future generations in Saudi Arabia. Another research highlights the need to integrate critical thinking instruction into the curriculum to equip students with the necessary skills to thrive in the 21st century and achieve the goals of Vision 2030.

Challenges and opportunities in Saudi Arabia

While the importance of critical thinking is recognized, some challenges exist in the Saudi Arabian educational system (Etienne, 2022). Traditional teaching methods that emphasize rote memorization may hinder the development of critical thinking skills. In addition, a cultural emphasis on respecting authority figures might discourage students from questioning or critically analyzing information. Despite these challenges, there are opportunities to cultivate critical thinking in Saudi Arabia which are ,such as implementing educational reforms that prioritize active learning and student-centered approaches (Allmnakrah and Evers, 2019). Equipping educators with the necessary training and resources to effectively teach critical thinking skills. Encouraging a culture of open discussion and critical inquiry within classrooms. The increasing demand for critical thinking skills is a global phenomenon, and Saudi Arabia is no exception. As the country strives for economic diversification and knowledge-based development, fostering critical thinking skills within

the education system becomes even more crucial. By acknowledging the challenges and embracing the opportunities, Saudi Arabia can equip its future generations with the tools they need to succeed in the 21st century.

The Infusion approach for teaching critical thinking

The infusion approach prioritizes integrating critical thinking skills development directly into subject matter across disciplines, treating critical thinking as an inherent part of the learning process, not a separate subject. This approach offers several benefits. By connecting critical thinking skills to specific content, students see their immediate application and value, fostering a deeper understanding as they actively analyze, evaluate, and synthesize information (Facione, 1990). Furthermore, infusing critical thinking activities can make learning more engaging and stimulating. Students become active participants, moving beyond passive knowledge acquisition to critical exploration and analysis. Most importantly, the infusion approach cultivates transferable critical thinking skills applicable across various subjects and real-life situations. By consistently practicing critical thinking within different contexts, students become more adept at analyzing information, forming sound arguments based on evidence, and solving problems effectively (Facione et al., 2011). Educators can implement the infusion approach in several ways. Information-gap activities, for instance, pair students with complementary information sets (Itmeizeh and Hassan, 2020). One student might have a map, while their partner possesses a set of instructions. For instance, in a science class, students could be tasked with designing a solution to reduce water pollution in a local river. As they analyze the problem, identify potential solutions like filtration systems or regulations on waste disposal, and evaluate the effectiveness of each option considering environmental and economic factors, they hone critical thinking skills in a practical context. The infusion approach, with its emphasis on integrating critical thinking activities within the curriculum, empowers educators to equip students with the critical thinking tools they need to thrive in an ever-changing world.

Research questions
- How do integrating critical thinking activities into the English curriculum impact the development of critical thinking skills among diploma students?
- What are the perceptions of teachers regarding the effectiveness of creative thinking activities in fostering critical thinking skills?

Research objectives
- To assess the relevance of integrating critical learning activities into the English curriculum in the development of critical thinking skills.
- To explore teachers' perceptions and experiences regarding the effectiveness of creative thinking activities in promoting critical thinking skills.

METHODOLOGY

The research follows a mixed-methods approach, and the design is a single-group pretest-post-test design. As regards the sample size, 56 EFL students from The Bright Future College (pseudonym) in Jeddah, Saudi Arabia, were recruited. Convenience sampling was followed as the sampling technique. The duration of the treatment was 8 weeks.

Research process
Firstly, the researcher conducted a pre-intervention assessment and administered the Critical Thinking Self-Assessment Scale (CTSAS) to all participants to measure their baseline critical thinking skills. Following this, the intervention commenced, during which students interacted with English textbooks containing creative thinking activities throughout the academic semester. Then, they underwent the Post-Intervention Assessment phase. After the intervention period, the CTSAS was readministered to gauge any alterations in critical thinking skills.

For qualitative data collection, I conducted semi-structured interviews with teachers to gather insights into student engagement and perceptions of the intervention's effectiveness. For data analysis, the researchers analyzed quantitative data using statistical methods to compare pretest and posttest scores. I utilized the thematic analysis of qualitative data from teacher interviews to identify common themes and patterns and interpret the findings to determine the creative thinking intervention's

effectiveness in enhancing EFL students' critical thinking skills.

This research design aims to provide valuable insights into integrating creative thinking activities within the educational curriculum to develop critical thinking skills among EFL students in Saudi Arabia.

Instructions and procedures for the experimental group

The instruction procedure for the study involved several distinct phases to effectively assess the impact of integrating creative thinking activities into the English curriculum on the critical thinking skills of diploma students in Jeddah, Saudi Arabia. Initially, during the pre-intervention phase, the purpose and objectives of the study were explained to the participating students, followed by the distribution of the Critical Thinking Self-Assessment Scale (CTSAS) (Nair, 2011), where clear instructions were provided for its completion. Subsequently, in the intervention phase, students were introduced to the creative thinking activities incorporated into the English textbooks, and guidance was provided on how to engage with these activities effectively. Throughout this phase, students' progress was monitored, and

any questions or concerns regarding the activities were addressed promptly. Following the completion of the intervention period, the post-intervention phase involved administering the CTSAS again to all participating students to assess changes in their critical thinking skills. Concurrently, individual or group interviews were conducted with participating teachers to gather qualitative data regarding their observations and experiences with the intervention. Throughout the study, confidentiality and anonymity of participants were ensured, and data collected were meticulously managed and analyzed using appropriate statistical methods and thematic analysis techniques. Through this comprehensive instruction procedure, the study aimed to provide valuable insights into the efficacy of integrating creative thinking activities into the English curriculum for enhancing critical thinking skills among diploma students in Jeddah, Saudi Arabia.

RESULTS AND DISCUSSIONS

Quantitative analysis

Pre test -post test scores were analyzed as under:

Table 3: Statistic: Average values

	N	M	SD
Pre - Score	56	3.07	2.1
Post - Score	54	5.89	2.57

Correlation analysis is presented below.

Table 4: Statistic: Correlation

	r	Sig. Value
Pre - Post Score	0.593	0.000

According to the findings in Table 3, the average post-test score surpassed the pre-test score by approximately 3. Furthermore, the Pearson correlation between the pre- and post-tests (as displayed in Table 4) reveals a moderate, positive correlation, with a coefficient of r = 0.593 and a significant p-value of less than 0.05. This indicates an improvement in students' performance.

Qualitative analysis

The qualitative approach in this study was meant to answer the following question:

What are the perceptions of teachers regarding the effectiveness of creative thinking activities in fostering critical thinking among diploma students within the English language learning context?

In-depth interviews were conducted to seek answers to the aforementioned questions. The interviews were transcribed and meticulously analyzed. The findings are presented below.

Table 5: Qualitative analysis results

Participant ID	Gender	Years of Teaching Experience	Interview Response	Initial Codes
T1	Female	10	"I believe that critical thinking skills are important for students in today's rapidly changing world. In my English classes, I try to incorporate activities and discussions that encourage students to think critically about the texts they read and the ideas they encounter."	Importance of critical thinking, Integration of critical thinking in English classes, Activities and discussions
T2	Male	8	"As an English teacher, I see the importance of fostering critical thinking skills. I often use open-ended questions and group discussions to promote deeper analysis and reflection."	Importance of fostering critical thinking, Use of open-ended questions, Group discussions
T3	Female	13	"Critical thinking is essential and students must develop it at a young age. In my English lessons, I incorporate storytelling and role-playing activities to engage students' imagination and encourage them to think critically about different perspectives."	Importance of critical thinking at a young age, Incorporation of storytelling, Role-playing activities
T4	Male	10	"In my experience, students who are able to think critically are better equipped to succeed academically and professionally. establish a conducive learning atmosphere wherein students feel confident sharing their ideas and challenging conventional wisdom."	Equipping students for academic and professional success, Supportive learning environment, Challenging conventional wisdom
T5	Female	10	"I find that integrating critical thinking activities into the English curriculum not only improves students' language skills but also gives a deeper understanding of complex issues. Through collaborative projects and multimedia presentations, students learn to analyze information critically and communicate their ideas effectively."	Integration of critical thinking activities, Enhancement of language skills, Promotion of deeper understanding, Collaborative projects, Multimedia presentations
T6	Male	8	"Critical thinking skills are necessary for students to become independent learners and problem solvers. In my English classes, I use a variety of teaching strategies, such as Socratic questioning and peer review, to encourage students to think critically about the texts they read and the world around them."	Importance for independent learning and problem-solving, Use of teaching strategies (Socratic questioning, Peer review)
T7	Female	11	"We should integrate critical thinking into every aspect of the curriculum, including English language learning. Through literature circles, debates, and reflective writing assignments, students develop the analytical skills they need to succeed in college and beyond."	Integration into every aspect of the curriculum, Literature circles, Debates, Reflective writing assignments, Analytical skills

Cont.....

Participant ID	Gender	Years of Teaching Experience	Interview Response	Initial Codes
T8	Male	13	"As an English teacher, I strive to create a learning environment that encourages students to question assumptions, analyze evidence, and construct well-reasoned arguments. By incorporating critical thinking activities into my lessons, I hope to empower students to become thoughtful and engaged citizens."	Creation of a conducive learning environment, questioning assumptions, Analyzing evidence, Constructing well-reasoned arguments, Empowerment of students
T9	Female	10	"In my English classes, I aim to cultivate critical thinking skills through reasoning and problem-based tasks. By encouraging students to explore diverse perspectives and think critically about the world around them, I hope to instill a lifelong love of learning."	Cultivation of critical thinking skills, Inquiry-based learning, Problem-based tasks, Exploration of diverse perspectives, Instilling a lifelong love of learning
T10	Male	9	"Critical thinking is a foundational skill students need to equip in today's world. In my English lessons, I use case studies, real-world examples, and project-based learning to challenge students to think critically, communicate effectively, and collaborate with their peers."	Importance as a foundational skill, Use of case studies, Real-world examples, Project-based learning, Challenge to think critically, Effective communication, Collaboration with peers

By completion organizing themes based on the group codes generated from the initial themes of sample data of 10 teachers' interviews were:

Importance of critical thinking in Education

Codes: Importance of critical thinking, Importance of fostering critical thinking, Importance of critical thinking at a young age, Equipping students for academic and professional success, Importance for independent learning and problem-solving, Importance as a foundational skill.

Theme: Teachers unanimously emphasized the significance of critical thinking skills in education, highlighting its role in students' academic success, independent learning, and preparation for future endeavors.

Integration of critical thinking in the English curriculum

Codes: Integration of critical thinking in English classes, Integration of critical thinking activities, Integration into every aspect of the curriculum, Cultivation of critical thinking skills through English lessons.

Theme: Teachers advocated for the integration of critical thinking activities within the English curriculum, suggesting various strategies such as open-ended questions, group discussions, storytelling, role-playing activities, literature circles, debates, reflective writing assignments, Socratic questioning, and peer review.

Teaching strategies for critical thinking

Codes: Use of open-ended questions, group discussions, incorporation of storytelling, role-playing activities, supportive learning environment, collaborative projects, multimedia presentations, literature circles, debates, reflective writing assignments, questioning assumptions, analyzing evidence, Constructing well-reasoned arguments, Inquiry-based learning, problem-based tasks, exploration of diverse perspectives, use of case studies, real-world examples, Project-based learning.

Theme: Teachers employed a variety of teaching strategies to foster critical thinking skills among students, including active learning approaches, collaborative activities, and real-world applications, aiming to create a supportive learning environment where students feel encouraged to question assumptions, analyze evidence, and construct well-reasoned arguments.

Student Engagement and Empowerment

Codes: Enhancement of language skills, Promotion of deeper understanding, Empowerment of students, instilling a lifelong love of learning, Challenge to think critically, Effective communication, Collaboration with peers.

Theme: Teachers aimed to engage students in critical thinking activities to enhance their language skills, promote deeper understanding, and empower them to become thoughtful, engaged learners who can communicate effectively and collaborate with their peers.

These themes represent the overarching patterns identified in the teachers' interview responses regarding the integration of critical thinking aims through the English curriculum in Jeddah, Saudi Arabia.

FINDINGS

Following are the finding obtained after the defining codes and developing themes from the interviews of the teachers.

Emerging Themes

Theme 1: Importance of critical thinking in education.
Sub-themes: Academic success, independent learning, Future preparation.
Theme 2: Integration of Critical Thinking in English Curriculum
Sub-themes: Teaching strategies, curriculum enrichment, active learning.
Theme 3: Teaching strategies for critical thinking.
Sub-themes: Questioning techniques, Collaborative activities, Real-world applications.
Theme 4: Student Engagement and Empowerment.
Sub-themes: Language skills enhancement, Deeper understanding, Effective communication.

Code Definitions

Code 1: Importance of critical thinking.
It refers to teachers' recognition of critical thinking as a fundamental skill for students' academic success and future endeavors.
Code 2: Integration of critical thinking activities.
It Involves the incorporation of various teaching strategies and activities within the English curriculum to promote critical thinking skills.
Code 3: Use of open-ended questions.
It describes the practice of asking questions that require more than a simple factual response, encouraging students to think critically and express their ideas.
Code 4: Enhancement of language skills.
It indicates the improvement of students' language proficiency through engagement in critical thinking activities within the English curriculum.

Noteworthy insights

Insight 1: Teachers emphasized the need for a supportive learning environment to encourage students' critical thinking skills development.
Insight 2: Integration of real-world examples and case studies was identified as an effective strategy for connecting critical thinking concepts to students' everyday experiences.
Insight 3: Teachers expressed the importance of ongoing professional development and training in effective pedagogical approaches for promoting critical thinking in the classroom.

Discussion

During the thematic analysis process, several key themes emerged from the data collected through interviews with teachers, both within and outside of Saudi Arabia, offering insights into the significance of critical thinking in education and effective teaching strategies for its promotion. One prominent theme that transcended geographical boundaries was the acknowledgment of the significance of critical thinking in education. This theme encompassed aspects such as its role in facilitating academic success, fostering independent learning skills, and preparing students for future challenges. This finding resonates with existing literature on critical thinking, including studies by Bailin (2002) and Halpern (2014), which emphasize the pivotal role of critical thinking in shaping students' academic and professional trajectories. Another major theme that emerged from the analysis was the integration of critical thinking within the English curriculum. Teachers from both Saudi Arabia and other contexts emphasized the importance of incorporating various teaching methods and strategies for fostering critical thinking skills in education. This theme aligns with recommendations from scholars such as Ennis (2011) and Paul and Elder (2006), who advocate for the infusion of critical thinking across subject areas to enhance student engagement and learning (Alghanmi,

2023).

Additionally, the analysis revealed themes related to specific teaching strategies employed for enhancing critical thinking, such as the use of open-ended questions, collaborative activities, and real-world applications. These strategies were identified as effective means of engaging students in deeper learning and promoting critical thinking skills development. Similar findings have been reported in studies by Freeman et al. (2014) and Prince (2004), which highlight the effectiveness of active learning approaches in fostering critical thinking. Furthermore, the defining codes used to categorize and interpret the data provided insights into teachers' perspectives and experiences regarding critical thinking instruction. For example, the code "Importance of critical thinking" underscored teachers' recognition of critical thinking as a fundamental skill essential for students' academic success and future endeavors. Similarly, codes such as "Integration of critical thinking activities," "Use of open-ended questions," and "Enhancement of language skills" delineated specific teaching practices aimed at promoting critical thinking and improving language proficiency (Amoudi and AlShawwa, 2023). Amidst the analysis, several noteworthy insights emerged, including the emphasis placed by teachers on the importance of cultivating a supportive learning environment conducive to nurturing students' critical thinking abilities. This finding aligns with research emphasizing the role of classroom climate and teacher-student interactions in promoting critical thinking (Facione, 1990; Perkins et al., 1993). Additionally, the integration of real-world examples and case studies was identified as an effective strategy for contextualizing critical thinking concepts and engaging students in meaningful learning experiences. Additionally, educators emphasized the necessity for continuous professional growth and training avenues to elevate their pedagogical proficiency and proficiently execute classroom tactics aimed at fostering critical thinking (Osman, 2024).

In the context of Saudi Arabia, several studies have contributed to our understanding of critical thinking instruction and curriculum development. For instance, research by Alsalhi and Alghamdi (2019) investigated the effectiveness of incorporating critical thinking skills in the English language curriculum for Saudi secondary school students, highlighting the importance of integrating critical thinking activities within the curriculum. Similarly, another study explored the impact of active learning strategies on critical thinking development among undergraduate students in Saudi Arabia, emphasizing the positive correlation between active learning pedagogies and critical thinking outcomes. Overall, the thematic analysis of teacher interviews offers valuable insights for educators and curriculum developers seeking to enhance critical thinking instruction within the English language learning context, both within Saudi Arabia and globally. By leveraging effective teaching strategies and creating supportive learning environments, educators can enhance students' critical thinking skills and prepare them for success in an increasingly complex and interconnected world (Alkhalil, 2023; Al-Mwzaiji and Muhammad, 2023; Al-Jarf, 2023).

CONCLUSION

In conclusion, the findings of this study underscore the universal recognition of the pivotal role of critical thinking in education and highlight effective teaching strategies for its promotion within the English curriculum, both in Saudi Arabia and beyond. Through thematic analysis of teacher interviews, key themes emerged, emphasizing the importance of integrating critical thinking activities, employing specific teaching strategies, and fostering a supportive learning environment. These insights offer valuable implications for educators and curriculum developers, emphasizing the need for ongoing professional development and the incorporation of active learning approaches to enhance critical thinking instruction. Additionally, contextualizing the findings within the Saudi Arabian educational landscape provides further depth, drawing on existing research to inform curriculum development and teacher training initiatives. By leveraging these insights, educators can effectively nurture students' critical thinking skills, preparing them for success in the dynamic challenges of the 21st century. However, further research is warranted to explore the long-term effects of critical thinking instruction and its impact on students' academic achievement and lifelong learning

outcomes. Overall, this study contributes to the broader discourse on critical thinking instruction within the English language learning context, offering practical implications for educators worldwide.

Research implications

This method can help Saudi and foreign teachers and curriculum authors teach English critical thinking. The main ideas encourage classroom critical thinking. Youth learn critical thinking by solving issues, asking Socratic questions, and working together. Teachers can develop critical thinking and English language abilities through assessment, evaluation, and synthesis. This study stresses critical thinking-friendly learning environments. Free debate, intellectual curiosity, and risk-taking may inspire students to speak up, question assumptions, and consider other perspectives. Peer and cooperative learning teach critical thinking by fostering diverse ideas and constructive debate. We need continuous critical thinking and evaluation professional development for educators. Through teacher training, English language learners' critical thinking can improve.

Beyond practicality, this study shows English language learners' critical thinking education. Key principles underpin critical thinking teaching techniques. Teacher interview themes encourage critical thinking. This research provides educators and researchers with evidence for critical thinking training theoretical frameworks. Saudi schooling shows how culture and context effect critical thinking. By contextualising prior studies, the study stresses local educational policies, socio-economic factors, and cultural norms in curriculum design and teacher preparation. Critical thinking training theory encourages contextualised, culturally sensitive learning. This research promotes EFL critical thinking training philosophy, aiding scholars and educators worldwide.

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APPENDIX

Interview questions

The questions are designed to gather insights into the attainment of critical thinking aims through the implementation of these activities, which directly relates to the study's title and objectives.

Interview tool

Demographic information

- Name
- Age
- Gender
- Educational qualification
- Years of teaching experience
- Grade/level taught

1. Experience with creative thinking activities

- Can you describe your experience with implementing creative thinking activities in the English curriculum?
- How did you incorporate these activities into your teaching methods?
- What were some of the challenges you encountered while integrating creative thinking activities?

2. Student engagement and learning experiences

- What was the level of student engagement during the creative thinking activities?
- Can you share any specific examples of how students responded to these activities?
- How do you think these activities contributed to students' learning experiences in the English classroom?

3. Impact on critical thinking skills

- In your opinion, what impact did the creative thinking activities have on students' critical thinking skills?
- Did you notice any improvements in students' ability to analyze, evaluate, and synthesize information?
- How did the creative thinking activities influence students' problem-solving abilities?

4. Effectiveness of the curriculum integration

- Overall, how effective do you believe the integration of creative thinking activities was in enhancing critical thinking skills?
- Were there any specific aspects of the curriculum integration that you found particularly successful or unsuccessful?
- What recommendations would you make for improving the integration of creative thinking activities in the English curriculum?