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Enhancing Critical Thinking Through Problem-Solving Activities in English Lessons

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Abstract

This is a systematic literature review that seeks to explore how problem-solving activities can be used to help in teaching the English language (ELT) to foster critical thinking. The review summarizes recent empirical research (2020 - 2025) regarding problem-based learning (PBL), inquiry-based learning, and collaborative problem-solving. Among the factors that most significantly contribute to the attainment of this objective are the promotion of analytical reasoning, self-regulation, and engagement through authentic, contextually relevant tasks. It was found that scaffolding, collaboration with peers, and the authenticity of problem contexts were the key components of critical thinking. Besides confirming that problem-solving activities have a positive effect on the cognitive and language abilities of students, this review offers practical ideas to educators on how they can make problem-solving tasks more effective in terms of both design and implementation. The review also explores the best strategies for facilitating critical thinking through problem-solving, which can be a great source of help to English teachers who wish their students to develop higher-order cognitive skills. Nevertheless, time limitations, teacher readiness and resource shortages are still obstacles to universal deployment.

1. INTRODUCTION

One of the essential skills that learners must acquire in the 21st century is critical thinking, as it is highly recognised worldwide. It is a very important skill as it enables students to judge the strength of evidence, identify the difference between facts and opinions, solve complicated problems, and arrive at logically sound, evidence-based solutions, not only within disciplines but also in real-world contexts. Leading scholars concur in their syntheses that developing critical thinking as both the cognitive skills that come into play and the constellation of attributes like open-mindedness and intellectual perseverance (Andreucci-Annunziata *et al*., 2023; Ps *et al*., 2023; Thampi *et al*., 2024) is the explicit goal of higher education and the school curriculum. Even though the precise definition and the best mode of assessment of critical thinking are still debated, educators hold the view that the practice of fostering it is a must for student preparation for meeting the challenges of the fast-changing world of information.

Problem-solving methods such as problem-based learning (PBL), inquiry-based learning, and collaborative problem-solving have been consistently cited as the most effective ways of encouraging students to think critically. As it is, quantitative studies have largely revealed that students' critical thinking skills can be greatly improved through collaborative problem-solving activities (Xu *et al*., 2023). So too, the systematic reviews of PBL modifications draw attention to the fact that features such as scaffolding, metacognitive prompts, peer collaboration, and authentic problem situations are not only supportive but also the most potent sources of learners' analytical and reflective capacities (Yu *et al*., 2023; Sánchez-García *et al*., 2025). These findings provide the explanation of why problem-solving tasks are engaging the learners in the processes that are at the core of critical thinking. These processes include analyzing information, evaluating evidence, generating hypotheses, and reflecting on reasoning.

This current review is concerned with recent empirical and theoretical evidence, which it seeks to integrate in relation to designing and implementing problem-solving activities as a part of the English lessons that cut across the range of literature, writing, and language-skill classes to foster critical thinking. The article, unlike being simply about the effectiveness of problem-solving, goes further by exploring the factors and the environment that make it work. The study features an extensive analysis to reveal which task features, teacher strategies, and assessment practices contribute most significantly to the stimulation of analytical and evaluative thinking in English classrooms (Xu *et al*., 2023; Yu *et al*., 2023). The review, through the integration of recent meta-analyses and classroom-based studies, not only determines the best practices but also serves a guiding purpose by furnishing practical insights to English educators.

English classes are especially suitable for developing critical thinking skills since the students are required to interpret texts, construct arguments, and consider different perspectives. Among the instructional strategies, the use of debates, text analysis, peer review, and reflective writing is in harmony with problem-solving processes, which ultimately lead to the development of reasoning and judgment (Andreucci-Annunziata *et al*., 2023). Besides, present educational policies embed critical literacy and misinformation-detection skills in the English curricula, which signifies the need to handle these issues in schools. Consequently, educators and learners, through integrating problem-solving activities in English lessons, get not only a way to improve language proficiency but also a vehicle to acquire higher-order cognitive skills necessary both in academic and civic life (Badshah, 2024).

2. METHODOLOGY

This review pursued a systematic and integrative strategy for scrutinizing the recent empirical and theoretical literature concerning the role of problem-solving activities in developing critical thinking skills within English language lessons. The methodology was thorough and balanced in its interpretation, guided by principles of transparency, replicability, and analytical synthesis, aiming to cover and interpret the data extensively and in a balanced manner.

2.1. Research Design

A systematic literature review (SLR) design was utilized for the study, which involved both descriptive and thematic analyses. The design was chosen to unearth, assess, and synthesize research evidence with respect to the impact of a variety of problem-solving pedagogies on learners' critical thinking abilities in the fields of English education. Such pedagogies included project-based learning, inquiry-based learning, and collaborative problem solving.

2.2. Data Sources and Search Strategy

A systematic search was conducted to locate the relevant literature from top-tier academic databases such as Scopus, Web of Science, ERIC, ScienceDirect, SpringerLink, and Google Scholar. To ensure the quality of the studies included in the review, only peer-reviewed journal articles, conference papers, and book chapters published between 2020 and 2025 were considered.

The literature review was conducted through proper usage of the right mix of keywords and the Boolean operators, thus covering almost the entire area of relevant studies. To get the starting search keywords, the researchers used two most important aspects of the problem, namely 'critical thinking' and 'problem-solving activities' as units and combined them with 'English lessons'. They also did other combinations with the keywords like 'project-based learning', 'inquiry-based learning', or 'collaborative problem-solving' that are linked with 'critical thinking in EFL/ESL'. To find those works that focus on teaching and learning, the researchers also used the words "critical reasoning" combined with "English pedagogy" or "English teaching strategies".

2.3. Inclusion and Exclusion Criteria

The review primarily focused on studies that explored the use of inquiry-based or problem-solving methods in ELT (English Language Teaching) and provided empirical or theoretical evidence supporting the link between these instructional approaches and students' critical thinking development. Only research works, which were published in peer-reviewed journals or other reputable academic sources and written in English, were considered eligible. Those studies, which failed to provide clear outcome measures for critical thinking, focused on non-English subject areas or pedagogical interventions not related to language instruction, and were purely conceptual without empirical data or a discernible educational context, were excluded.

2.4. Data Extraction and Analysis

The articles selected after the first round of screening were qualitatively coded and examined using a thematic synthesis model consisting of three stages. The initial stage of the work was the descriptive coding, which aimed at extracting the general characteristics of the study including the author, publication year, research context, sample population, study design, and type of intervention. The second phase involved thematic categorization of the research findings which were reorganized into broader domains comprising instructional strategies, scaffolding methods, learner engagement,

assessment practices, and technology integration. The third phase saw interpretive synthesis being used to combine recurring patterns and conceptual connections thereby constructing a comprehensive model that demonstrates the relationship between problem-solving activities and critical thinking outcomes in English learning environments.

2.5. Quality Assurance

Several methodological measures aimed at enhancing the validity of the review and reducing the risk of bias were put in place. The first measure was triangulation, which was performed by comparing and integrating the results of quantitative, qualitative, and mixed-method studies to ensure that the interpretation was consistent and had the required depth. Secondly, the data that had been extracted were thoroughly checked through the re-examination of the full-text versions of the studies that were ambiguous or unclear in the initial screening phase. Lastly, citation tracking was used to locate the foundational and influential works that might not have been considered in the primary database search, thus ensuring the completeness and the dependability of the literature that was reviewed.

2.6. Ethical Considerations

The research was based on secondary analysis of the previously published works; hence, no direct involvement of human participants. Nevertheless, proper acknowledgment of all the original authors and adherence to citation standards were observed throughout.

3. FINDINGS

3.1. Conceptual Framework

Critical thinking may be best described as a metacognitive, dispositional and skill-based system which empowers learners to comprehend information, analyse arguments, evaluate evidence, create logical inferences, explain reasoning, and reflect on their own thinking (Graham, 2022; Dwyer, 2023). The multi-component view, often referred to by the six terms of interpretation, analysis, evaluation, inference, explanation, and self-regulation, not only depicts critical thinking as the verification of cognitive operations but also as habits of mind (e.g., open-mindedness, intellectual perseverance) that impact the way students handle complex tasks. If these components are explicitly taught and scaffolded, they will bring about measurable changes in students' learning outcomes; that is, students will be able to make better evidence-based claims, write more coherent arguments, understand more complex texts, and apply reasoning skills to new problems (Dwyer, 2023; Altun, 2023).

"Problem-solving activities" in English lessons refer to a variety of instructional designs that challenge students to recognize a communication or interpretation problem, come up with hypotheses or solutions, verify these solutions through language use, and reflect on the results. Essentially, the varieties are: (a) problem-based learning (PBL) tasks, which employ real, open-ended scenarios (e.g., resolving a local literacy problem or creating an evidence-based interpretation of a disputed text) to

initiate the inquiry process; (b) collaborative problem solving, in which small groups talk about the understanding of a text, decide on the most relevant interpretation of a text, or jointly write persuasive texts; (c) inquiry projects that introduce socially relevant questions requiring answers through research, synthesis, and argumentative writing; and (d) genre-oriented problem tasks that ask learners to use language strategically in order to achieve specific rhetorical goals or target audiences (Guo, 2024; Xu *et al*., 2023). These different designs vary in their structures (problems may be well-defined or ill-structured), length (from a single lesson to a multi-week project), and the degree of teacher support that is provided, but they all focus on active sense-making and the use of language for a purpose.

Firstly, authentic problems bring about a genuine need to know: in order to solve these problems, learners need to evaluate sources, decide which information is relevant and which is not, and, at the same time, they need to consider the different and contrasting claims presented – altogether these operations develop analytical and evaluative skills (Xu *et al*., 2023). Secondly, collaboration formats stipulate among the participants the need for argumentation and justification; thus, when peers critically examine and defend ideas, students under the function of social accountability practice inference and explanation, thereby not only improving their cognitive skills, but also their critical dispositions (Sweet and Michaelsen, 2023; Xu *et al*., 2023). Third, properly formulated supports (metacognitive prompts, rubrics, teacher questioning) not only help students become aware of their own reasoning and bring about the transfer of methods to new problems, thus they are also instrumental in the student's development of the self-regulatory aspects of critical thinking (Guo, 2024; Dwyer, 2023). Finally, repetition cycles of formulating hypotheses, verifying them through language activities (speaking, writing, debating), and revising not only help students achieve deeper conceptual understanding and better communicative skills but also make problem solving, in this case, to be in tandem with language proficiency growth and higher-order reasoning (Guo, 2024; NCES 2017). Empirical syntheses and recent meta-analyses show medium-to-large effects for both PBL (Project Based Learning) and collaborative problem solving on various measures of critical thinking. Furthermore, they indicate that effects depend on factors such as task authenticity, intervention duration, group size, and whether or not explicit scaffolds are provided (Xu *et al*., 2023). Developing the conceptual framework that defines the main elements of the critical thinking and problem-solving activities, the next section dwells upon the theoretical perspectives that allow shedding more light on the way the components mentioned can be successfully incorporated in English language teaching. With the understanding of cognitive theory, constructivism, and the Taxonomy of Bloom, this section will discuss the cognitive processes in helping build critical thinking by solving problems.

3.2. Theoretical Perspectives

Cognitive theory suggests that learning - and especially critical thinking - is largely based on internal mental processes such as perception, memory, reasoning, metacognition, and the ability to manipulate and analyze information (Almulla & Al-Rahmi, 2023; Maringanti & Sahu, 2024; Tamayo Alzate, 2025). From this angle of vision, critical thinking entails not only the knowledge that students

have but the way they process that knowledge: how they reflect, self-monitor, evaluate sources, recognize their own biases, and draw inferences. Several studies reveal that when instruction is focused on these cognitive processes, students participating in such instruction show superior performance in tasks requiring deeper analysis and inference (Greeno, 2021; Tamayo Alzate, 2025). Therefore, through cognitive theory, educators can comprehend a viable ground whereby learners receive scaffolds to be more competent in analytical and evaluative skills.

Constructivism emphasizes that learners through their active participation, inquiry, collaboration, and reflection continually construct new knowledge based on their prior knowledge. Peer interaction, cooperativity, and smart classroom settings (i.e. student-centered and interactive) are three factors that according to Almulla (2023) not only have a positive influence on critical thinking but also on problem-solving skills. Placing learners in real-world and relevant tasks instead of content delivery makes learners more engaged in sense-making and hypothesis-testing, which in turn leads to higher cognitive engagement. Constructivism consequently offers a theoretical background for problem-solving as it regards students as inventors of new concepts, whereas teachers are only facilitators/scaffolds, at the same time the presence of mistake, argument, and reflection is considered helpful by the Constructivist theory.

Bloom's Taxonomy (revised versions) identifies the cognitive skills of the mind that come from a lower to a higher-order thinking: *Remember, Understand, Apply, Analyze, Evaluate, Create*. The top three levels (Analyze, Evaluate, Create) strongly correlate with the kind of thought processes that are needed for a complex problem-solving approach (Melati and Rasyid, 2023). For instance, in the case of reading comprehension with the text designed for certain purposes, tasks at the *analysis* level require students to take apart the structure of the argument, at the *evaluation* level to assess claims or biases, and at the *creation* level to create different interpretations or persuasive writings (Horváthová and Naďová, 2022). Various research studies conducted in English as a Foreign Language (EFL) environments illustrate that intervention schemes which explicitly incorporate Bloom-based frameworks lead to enhancement of students' reading abilities and improvement of the classroom atmosphere by the most significant factor of students' capacity which is to evaluate arguments and create responses instead of merely recalling or summarizing (Moghadam *et al*., 2023; Anonymous study 2023; Derakhshan and Shakki, 2023; Kozbial *et al*., 2025).

3.3. Benefits of Problem-Solving Activities in English Lessons

3.3.1. Enhancing Analytical Skills

Problem-solving activities put learners in the situation where they have to dissect texts, locate assumptions, survey evidence, and build justified interpretations — these being the chief analytical operations at the core of advanced language proficiency (Deane, 2020; Ruslan *et al*., 2024; Guo, 2024). In EFL settings, problem-based activities that require students to find the solution to authentic communicative dilemmas (for instance, settling the dispute over the content of a news report, or judging the trustworthiness of the competing sources) initiate processes such as comparison, inference, and

source evaluation, and several empirical studies have been reporting the measurement of considerable progress in participants' analytic outcomes (Kök, 2023; Guo, 2024). Teachers through communicative goals embed analysis which thus changes passive comprehension to active sense-making that in turn helps students to strengthen their ability to parse argument structure, detect bias, and justify textual readings (Guo, 2024; Kök, 2023).

3.3.2. Promoting Independent Thinking (Self-Regulation and Autonomy)

Appropriately designed problem-solving activities facilitate student autonomy by providing the opportunities to them to plan, monitor, and evaluate their own work - the behavioral aspects of self-regulated learning (Law *et al*., 2020; Aldosari, 2023; Li *et al*., 2024). When students carry out inquiry projects, handle group roles, or rewrite written solutions based on the given feedback, they are practicing goal-setting, strategic problem selection, and self-assessment; these metacognitive moves have a very strong connection with long-term independent critical thinking skills (Aldosari, 2023). Research on PBL as well as student-centered language programs also reveal that taking responsibility for problem definition and solution, thus, leads learner to be more willing to take the initiative, provide their own study scaffolding, and they transfer the strategies to new tasks (Nicholus, 2023; Aldosari 2023).

3.3.3. Engagement and Motivation

Often problem-solving activities help to raise two energetic engagement variables, namely task authenticity and relevance (Zhong, 2025). The studies of task-based and project-based English classes that focus on engagement show that students have behavioural, cognitive, and agentic engagement to a higher degree when they are working on meaningful problems that relate to their lives or future goals (Zhong, 2025; Arani, 2023). The increased engagement leads, in turn, to the sustaining of effort and persistence on difficult analytic tasks thereby producing the "time-on-task" and depth of processing that are necessary for critical thinking development (Zhong, 2025). Several empirical studies in addition to this, PBL and collaborative problem tasks, are also related to learner interest, classroom participation, and intrinsic motivation improvements as compared to that of teacher-centred lecture methods (Arani 2023; Guo, 2024).

3.3.4. Development of Language Skills (Linguistic + Cognitive Gains)

Problem-solving activities are a form of simultaneous exercise of linguistic forms and higher-order thinking: Accordingly, as learners work out solutions they use also vocabulary, grammar, discourse organization, and genre conventions besides they also undertake analytic and argumentative moves (Guo, 2024; Nicholus, 2023). Meta-analytic and classroom studies in EFL/ESL settings show PBL and problem-based tasks can improve speaking fluency, argumentative writing quality, vocabulary use, and pragmatic competence — all these outcomes are directly linked to repeated and purposeful

language use in problem-solving contexts (Guo, 2024; Kök, 2023). In brief, problem-solving acts as a dual-focus pedagogy: while it helps to improve language accuracy and complexity, it also develops the cognitive routines (analysis, evaluation, revision) that are at the core of critical thinking and communicative competence.

3.4. Types of Problem-Solving Activities for English Lessons

Problem-solving activities in English lessons involve students in applying critical thinking, creativity, and linguistic competence to real-world contexts. These activities take learners beyond the memorization of the material, as they give them an opportunity to construct meaning, evaluate alternatives, and communicate effectively in various situations (Richards & Farrell, 2021). The following types are among the most widely used and pedagogically effective.

a). Case Studies: Case studies motivate students to dissect real-life scenarios and come up with answers through talk and logic. They open students' minds to thinking logically, using vocabulary and solving problems together (Carter & Nunan, 2022). As an example, the analysis of a misunderstanding in a workplace conversation may lead students to consider language use for communicative purposes and sociolinguistic appropriateness (Nguyen & Le, 2023). In this way of looking at things, learners not only take in language structures but also the strategies for making choices.

b. Role-playing and simulations*:* Role-playing and simulation exercises motivate learners by engaging them in real-life communicative tasks. Under these activities, learners are compelled to come up with ideas on the spot, negotiate, and put themselves in the other person's shoes (Harmer, 2020). When students take parts in interviews, debates, or customer conversations, they, among other things, need to critically evaluate the tone, register, and word choice (Ghazali & Setiawan, 2021). Such activities therefore, enhance the learners' pragmatic competence as well as their ability to adjust to rapidly changing communicative situations.

c) Debates and discussions*:* Engaging students in structured debates and guided discussions cultivate critical reasoning as they require the students to analyse topics, provide evidence to support their claims, and consider the opposing perspectives (Lee & Wallace, 2022). The stage of presenting and defending arguments not only develops one's abilities in logical organization, persuasive writing, and verbal fluency but also improves other skills as well (Oluwole, 2023). Besides, debates equip learners with the skill of being open-minded and recognizing the different interpretations that can be derived from texts or issues.

d) Creative writing and storytelling*:* Creative writing activities such as writing a story, an alternative ending, or a monologue, etc., prompt students to focus on plot coherence, character motivation, and

stylistic language of the text (Tomas & Yunus, 2021). Storytelling enhances students' ability to draw inferences from the text and their creativity in language as they face the narrative challenges and come up with imaginative solutions (Hassan, 2023). The mentioned writing exercises help students to get more profoundly involved emotionally as well as develop greater cognitive flexibility.

e) Project-based learning (PBL): Participating in project-based learning activities makes students want to find out the answers to difficult, open-ended questions by the long inquiry and the cooperation of the group (Larson & Miller, 2020). Projects in English classes might be the production of podcasts, the invention of newsletters, or the research through conducting interviews—all of these activities combine the skills of research, writing, and oral communication (Yilmaz & Kaya, 2023). PBL improves learner autonomy, critical inquiry, and interdisciplinary consciousness, besides, it is language learning that is firmly

3.5. Challenges in Integrating Problem-Solving Activities in English Lessons

Problem-solving activities have been shown to be instrumental in developing critical thinking skills and language proficiency. However, their deployment in English language classes is faced with myriad practical and pedagogical challenges. These hurdles can lead to both the decline in quality and the inconvenience of the implementation (Richards & Farrell, 2021). The most significant issues are time limitations, teacher preparedness, student readiness, and resource constraints.

3.5.1. Time Constraints

Limited instructional time is one of the most frequent barriers. The majority of English curricula are so tightly organized around syllabus coverage and examination preparation that they hardly leave any room for problem-solving activities which are time-consuming and involve analysis, collaboration, and reflection (Lee & Wallace, 2022). Teachers often complain they are in a tug of war between performing communicative activities and meeting the grammar and comprehension units' requirements (Tomas & Yunus, 2021). As a result, problem-solving activities may be shortened or completely left out, thus, learners may not experience their cognitive and linguistic development to the full extent.

3.5.2. Teacher Preparedness

The pedagogical skill of problem-solving is effectively carried out through teacher quality and confidence. Unfortunately, there are many teachers who are not properly trained when it comes to the designing, facilitating, and grading of problem-solving tasks (Carter & Nunan, 2022). Besides, the shift from lecture-based to student-centered, inquiry-based learning can be a challenge for teachers (Nguyen & Le, 2023). Additionally, limited access to professional development programs only serves to widen the gap and leave teachers helpless as to how they should facilitate open-ended discussions or assess process-oriented learning outcomes (Harmer, 2020).

3.5.3. Student Readiness

Variations in student readiness levels is another major challenge for problem-solving activities. Some learners could have difficulties with the autonomy and abstract thinking aspects of problem-solving activities (Afsaneh, 2022; Oluwole, 2023; Husnaini, 2025). While others may prefer that the teacher gives the information directly, they memorize it without understanding and subsequently do not see the necessity of analytical reasoning or collaborative communication (Ghazali & Setiawan, 2021). Cultural expectations can even have the power to change the communication between teachers and students in the classroom; for example, in places where respecting and following the rules is highly valued, students might be reluctant to challenge ideas or express different opinions (Yilmaz & Kaya, 2023).

3.5.4. Resource Limitations

In addition, the problem of resource scarcity can be the cause of many other issues that the problem of integrating devices in solving tasks may arise. For instance, a school that is not able to provide sufficient or quality education materials, tools, or necessary infrastructure may encounter difficulties in employing project-based or simulation-based activities (Larson & Miller, 2020). Even though some teachers are willing to make changes, a lack of digitally-based resources or interactive learning platforms can hamper students' authentic engagement opportunities (Hassan, 2023). The provision of institutional support and funding is still a major factor for the continuation of teaching strategies based on problem-solving in different educational settings.

3.6. Strategies for Effective Implementation

3.6.1. Creating a Collaborative Learning Environment

By engaging learners in small-group problem-solving tasks (methods: jigsaw, think-pair-share, cooperative inquiry) they will interact to clarify the meaning, share the cognitive load and build together their arguments, all these mental processes, as research suggests, lead to the improvement both of critical thinking and language production (Mercier *et al*., 2023; De Klerk, 2024). It is also beneficial that teachers change roles in different groups (recorder, reporter, devil's advocate), thereby each student gets the opportunity to practice reasoning, using evidence, and metacognitive reflection (Ramdani, 2022). In addition, interaction frameworks and short formative checks (exit slips, one-minute reflections) work well when complemented with the collaboration, which in turn helps to keep it focused and fruitful.

3.6.2. Scaffolding Problem-Solving Tasks

One approach would be to create a theme that is first explored through the teacher instruction and demonstration, then students guided in their practice by the teacher through suggestions and questions, and finally students are to use strategies and skills in tasks that are increasingly more open and complex (Frabasilio, 2022; Hendrayana, 2025). Scaffolds may refer to aiding tools of language

(sentence stems, vocabulary banks), cognition (graphic organizers, question frames), or procedures (task checklists, rubrics). The incremental removal of supports facilitates the continuous learner autonomy and at the same time, it ensures the preservation of those success experiences which are very important for the learners to keep their engagement and to develop higher-order thinking.

3.6.3. Involving Technology

Implement the use of targeted digital mediums that foster interaction, argumentation, and reflection: asynchronous moderated debates and discussion boards facilitate evidence-based reasoning; collaborative documents (for example, shared slides, wikis) support joint authorship; and educational games/interactive tasks can engage students in hypothesis testing and decision making in a non-threatening manner (Kuehne, 2020; Song, 2024). AI-supported debate simulators and video-mediated tasks may also be used to provide practice beyond the time of the class; however, teachers should check for the authenticity of the task and linguistic accuracy. The integration of technology will yield the best result when it is in line with the learning goals and the teacher's facilitation is process-oriented (not just product).

3.6.4. Assessment-Techniques

Use a mix of both formative and summative tools to assess critical thinking and problem-solving. Analytical rubrics which decompose one's thinking into visible parts (for example, clear claim, use of evidence, reasoning, counter-argument, reflection), serve as one's criteria and diagnostic feedback (Karatay, 2022; Aslan, 2024). In addition, oral debates, project reports, and reflective journals as performance tasks can be combined with short, focused prompts that require quick reasoning. Introduce peer- and self-assessment for metacognitive development, and use a range of evidence – products, recordings of discourse, and teacher observations – to make unbiased decisions in language-limited contexts (Pearson, 2025; Taylor, 2024).

3.7. Practical Implementation Checklist

Practical problem-solving and critical thinking activities in English lessons are best achieved through well-organized planning and consistent reflection. The beginning of each unit can be marked by a brief collaborative warm-up whose main purpose is to focus on a particular reasoning skill such as evaluating evidence or drawing conclusions. The lessons then need to proceed through a carefully structured sequence that moves from teacher demonstration to guided group work, followed by an independent activity and a reflective session aimed at consolidating the learning. The use of technology may also be deliberate if only one digital tool is selected for each unit and it is clearly communicated how it will facilitate the development of a certain reasoning skill. On each major problem-solving assignment, teachers are required to either make a rubric or modify an existing rubric with four to five criteria that clearly explain the content of the rubric. After that, the rubric is to be shared with students

so that they can know the expectations of the task in advance. At last, the involvement of peer feedback sessions by means of the middle point of the project serves the students in recognizing their reasoning gaps and making their work up to the mark before the final assessment.

3.8. Case Studies and Evidence from Research

3.8.1. Empirical Studies: Review of Studies Demonstrating the Impact of Problem-Solving Activities on Critical Thinking in English Lessons

There is a growing body of empirical literature that supports the effectiveness of problem-based and project-based instructional models in fostering higher-order thinking as compared to traditional instruction models. A meta-analytic synthesis that examined project-based learning (PBL) effects found a small-to-moderate positive impact of PBL on learners' cognitive skills as well as the related affective outcomes, and thus arrived at the conclusion that well-structured, authentic projects help not only creative thinking but also critical thinking in various contexts. (Zhang 2023; Thu *et al*., 2025; Asiedu, 2025). Besides that, the results of quasi-experimental and mixed-methods research which have been published and that have concentrated exclusively on English (EFL/ESL) contexts are similar: If reading, writing, or speaking tasks are transformed into authentic, open-ended problems—thus requiring the generation of hypotheses, evaluation of evidence, and argumentative response—then learners will demonstrate greater gains in analysis, inference, and evaluation, as compared to their counterparts in teacher-directed classes (e.g., studies using PBL or problem-solving writing tasks). (Beckett, 2023; Adeline, 2024).

Intervention research studies that employ interactive and inquiry-based technologies also report the enhancements of various critical-thinking subskills. Investigations into interactive learning environments and computer-assisted models reveal that the tasks which are carefully constructed to guide students through the stages of problem-solving (identify, investigate, hypothesize, justify) lead to a statistically significant increase in students' skills of text interpretation, evidence evaluation, and construction of reasoned arguments in English lessons. (Song, 2024; Tola, 2025). Lastly, empirical work conducted to understand teacher-focused changes in practice, suggests that the extent of the gains determined by students' task engagement also depends heavily on the task and the teacher who implements it in class. Studies of teachers' practices indicate that open-ended questioning, teacher prompts that require justification, and deliberate modelling of reasoning mediate the effect of problem-solving activities on learners' critical thinking; without those supports, problem tasks often devolve into procedural or language-practice activities with limited cognitive challenge. (Rittmann, 2024).

3.8.2. Real-Life Classroom Examples Showing Success and Challenges in Using Problem-Solving to Foster Critical Thinking

Classroom Example 1: The high school English class implemented a problem-solving-based project-based learning (PBL) unit that lasted a semester, where students investigated local

environmental issues and created a multimedia persuasive portfolio. Teachers reported measurable improvements in students' abilities to evaluate sources, integrate counterarguments, and produce coherent written claims. Student interviews also revealed higher engagement. The classroom case illustrates how authentic, community-oriented problems increase motivation and provide meaningful contexts for applying language and reasoning skills (PBL case summaries; Zhang, 2023).

Classroom Example 2: A university EFL writing course replaced traditional essay prompts with staged problem-solving cycles (problem framing → research → collaborative critique → revision). Pre/post measures showed significant gains in analytical writing scores and in students' meta-cognitive awareness of argumentation. However, visitors saw a stark contrast in results: students with less proficiency in language skills could hardly engage in the tasks of analysis without support (peer modelling, sentence frames). This example underlines the necessity of tiered support when language learning is combined with cognitive challenge (Beckett, 2023; Adeline, 2024).

Classroom Example 3: Several secondary EFL teachers in their classrooms decided to integrate short, tech-medicated problem tasks such as interactive case studies or simulations. Performance on discrete critical-thinking subtests (interpretation and evaluation) especially when the task contained explicit reflection prompt (reflective writing) after problem resolution was improved according to the research. The same studies point out that reflection whether written or oral helps to consolidate reasoning processes and transfer them to new texts. Among the challenges for the implementation were the limited class time and the need for teachers' professional development in designing reflective prompts. (Song, 2024; Tola, 2025).

Challenges across localities — Local implementation problems of methods reported in the study and the corresponding classroom accounts are identical and thus may be considered as a common set of issues: (1) task design that balances language demands with cognitive challenge, (2) teacher skill in eliciting and scaffolding reasoning (questioning, modelling justification), (3) adequate time for inquiry and reflection, and (4) valid assessment practices that capture reasoning rather than only language form. In places where such limitations were overcome—by lesson study, collaborative planning, or supported rubrics—problem-solving activities led to stronger, more lasting, critical-thinking improvements (Rittmann, 2024; Zhang, 2023; Astika, 2025).

4. CONCLUSION

This literature review is systematic and is expected to add to the literature with the synthesis of both empirical and theoretical studies concerning the integration of problem-solving activities in English language teaching (ELT) to promote critical thinking. In particular, it brings to the fore the role of problem-based learning (PBL), inquiry-based learning, and collaborative problem-solving to develop the analytical, evaluative, and reflective skills of the students during English lessons. The guidelines mentioned herein can be applied by teachers who wish to implement these activities in their lessons.

Nevertheless, there are some limits that have to be mentioned. To start with, the review presents a summary of studies published in the last five years (2020-25), which might have left out the seminal literature before this time. Also, the review is also prone to possible biases because of concentration on specific databases, and omission of studies of non-English language. Future experiments should seek to determine the different effects of digital and non-digital problem-solving activities on the outcome of critical thinking. Studies are also required to review the best forms of teacher training that equip teachers with the pedagogical transformation of delivering instruction based on problem solving. Future research needs to explore the effects of cultural contexts on the process of applying problem-solving activities and determine the long-term effect of cultural contexts on the development of language proficiency and critical thinking skills.

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