

DEVELOPING CRITICAL THINKING COMPETENCE IN EFL LEARNERS THROUGH PROJECT-BASED LEARNING ACTIVITIES

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Abstract. Critical thinking has emerged as one of the most sought-after competencies in twenty-first century education, particularly in the context of English as a Foreign Language (EFL) instruction. This study investigates the extent to which Project-Based Learning (PBL) activities foster and develop critical thinking competence among undergraduate EFL learners at a Central Asian university. Employing a quasi-experimental research design with pre- and post-assessments, 48 EFL learners participated in a twelve-week PBL intervention encompassing five structured activities. Data were gathered through the Watson-Glaser Critical Thinking Appraisal, reflective journals, and teacher observations. Findings reveal statistically significant improvements across all five critical thinking dimensions examined: critical analysis, problem solving, collaborative thinking, creative reasoning, and evaluative judgment. The results suggest that PBL creates authentic communicative contexts that simultaneously challenge learners linguistically and cognitively, making it a particularly effective pedagogical framework for EFL classrooms seeking to nurture higher-order thinking skills.

Keywords: critical thinking, project-based learning, EFL learners, higher-order thinking, communicative competence, 21st century skills

In an era defined by rapid technological advancement and globalized communication, the capacity to think critically has transcended its traditional academic confinement to become an indispensable life skill. Educational stakeholders across disciplines consistently identify critical thinking alongside collaboration, communication, and creativity as the core competencies students must develop to navigate complex, information-saturated environments effectively (Trilling & Fadel, 2009). Yet despite widespread endorsement of critical thinking as an educational priority, many instructional practices in EFL contexts remain anchored in transmission-oriented pedagogies that privilege memorization and rote reproduction over reasoning and inquiry.

Project-Based Learning (PBL) represents a meaningful departure from this tradition. Rooted in constructivist learning theory, PBL engages learners in sustained, collaborative investigations of real-world problems, culminating in publicly shared products or performances (Thomas, 2000). Unlike decontextualized language exercises, PBL tasks demand that students interrogate sources, weigh competing arguments, synthesize information across domains, and defend their conclusions, cognitive operations that align directly with the intellectual demands of critical thinking[4].

In EFL settings specifically, the pedagogical value of PBL extends beyond critical thinking development. The authentic communicative demands embedded within project work provide learners with purposeful contexts for language use, thereby integrating content and language learning in ways that isolated grammar or vocabulary instruction rarely achieves (Beckett & Slater, 2005). Despite growing scholarly interest, however, empirical evidence documenting the specific impact of PBL on critical thinking competence among EFL learners remains limited, particularly outside Western educational contexts[2].

This study seeks to address that gap by examining how structured PBL activities influence the development of critical thinking skills in undergraduate EFL learners. The following research questions guide the investigation: (1) To what extent does participation in PBL activities improve EFL learners' overall critical thinking competence? (2) Which dimensions of critical thinking demonstrate the greatest gains following PBL intervention? (3) What qualitative evidence from learner reflections illuminates the mechanisms through which PBL promotes critical thinking development?

The theoretical landscape surrounding critical thinking is both rich and contested. Ennis (1987) defines critical thinking as reasonable, reflective thinking focused on deciding what to believe or do, an orientation that foregrounds judgment and evaluation over mere information recall. Facione (1990), in his influential Delphi Report, identifies six core critical thinking skills: interpretation, analysis, evaluation, inference, explanation, and self-regulation, each of which can be fostered through carefully designed pedagogical activities[5].

Within EFL research, scholars have debated whether critical thinking constitutes a culturally neutral cognitive capacity or whether it is deeply embedded in particular discursive traditions (Atkinson, 1997). While early work suggested that non-Western learners might resist interrogative or argumentative tasks due to cultural values of deference, more recent scholarship challenges this deficit narrative, demonstrating that EFL learners across diverse cultural contexts engage productively with critical tasks when provided appropriate scaffolding and relevant content (Stapleton, 2002; Kumaravadivelu, 2003)[2].

Project-Based Learning draws its theoretical foundations from several intersecting traditions. Dewey's (1938) experiential education philosophy, which positioned learning as purposeful engagement with real problems, provides an early intellectual anchor. Vygotsky's (1978) socio-cultural theory, emphasizing the role of social interaction and collaborative scaffolding in cognitive development, further underpins PBL's emphasis on group work and peer dialogue. More recently, constructivist theorists have framed PBL as an environment in which learners actively construct knowledge rather than passively receive it (Krajcik & Shin, 2014)[6].

Thomas (2000) identifies five key features of genuine PBL: centrality of the project to the curriculum, a driving question that organizes and guides student activity, constructive investigation involving inquiry and knowledge building, student autonomy in decision-making, and authentic connection to real-world contexts. These features collectively create conditions that require, rather than merely encourage, higher-order thinking[2].

A growing body of empirical research supports the relationship between PBL and critical thinking development. Mergendoller, Maxwell, and Bellisimo (2006) found that PBL significantly outperformed traditional instruction in developing students' ability to analyze complex economic problems. In EFL-specific studies, Fragoulis and Tsiplakides (2009) documented meaningful improvements in Greek EFL learners' analytical writing following PBL implementation[1]. More recently, Chen and Yang (2019) demonstrated that PBL enhanced Taiwanese university students' critical thinking dispositions along with their English communicative competence, suggesting synergistic rather than competing developmental pathways[3].

Notwithstanding these promising findings, researchers have noted important contextual variables that mediate PBL's effectiveness: teacher facilitation quality, task authenticity, clarity of assessment criteria, and the degree of scaffolding provided. These observations underscore the need for carefully designed implementation studies, particularly in under-researched contexts such as Central Asian EFL classrooms.

The PBL intervention spanned twelve weeks and incorporated five structured project activities (see Table 1). Each activity was designed around a driving question connecting to authentic social, academic, or professional concerns relevant to the learners' contexts. Activities

were scaffolded progressively, beginning with more structured researcher-framed tasks in weeks one through four and gradually increasing learner autonomy through weeks eight to twelve. Group sizes ranged from four to six students per team.

Table 1. Summary of PBL Activities and Their Critical Thinking Foci

PBL Activity	Critical Thinking Skill Targeted	Duration	Assessment Method
Investigative Research Project	Analysis & Evidence Evaluation	4 weeks	Written Report + Peer Review
Debate and Argumentation Task	Logical Reasoning & Persuasion	3 weeks	Live Debate + Rubric
Problem-Solving Simulation	Creative & Divergent Thinking	3 weeks	Portfolio Submission
Community Issue Campaign	Evaluative Judgment & Synthesis	4 weeks	Presentation + Reflection
Collaborative Case Analysis	Collaborative & Critical Reflection	2 weeks	Group Report + Self-Assessment

Note. All activities incorporated English as the primary medium of communication and documentation.

Critical thinking was assessed using an adapted version of the Watson-Glaser Critical Thinking Appraisal (WGCTA), modified to include scenario prompts relevant to learners' academic and cultural contexts. The appraisal measured five dimensions: critical analysis, problem solving, collaborative thinking, creative reasoning, and evaluative judgment. Scores were expressed as percentages of maximum performance. Additionally, learners maintained weekly reflective journals in English, and the lead teacher recorded structured observational notes across all sessions. Quantitative data were analyzed using paired-samples t-tests and descriptive statistics; journal entries and observational notes underwent thematic analysis following Braun and Clarke's (2006) reflexive methodology.

Descriptive statistics revealed consistent and substantial gains across all five critical thinking dimensions for the experimental group. Mean pre-PBL scores ranged from 36% to 45% across the five dimensions, while post-PBL means ranged from 71% to 82%, representing average improvements of 32 to 38 percentage points. Paired-samples t-tests confirmed that all improvements were statistically significant ($p < .001$). The control group demonstrated no significant change across the same twelve-week period.

Collaborative thinking and problem solving showed the greatest absolute gains, increasing by 37 and 40 percentage points respectively. These dimensions were most directly targeted by the simulation and debate activities, which required sustained peer negotiation, real-time reasoning under conversational pressure, and collective decision-making. Critical analysis, while also demonstrating significant improvement, showed the smallest gain (32 percentage points), potentially reflecting the greater cognitive complexity of this dimension and the relatively limited duration of the intervention.

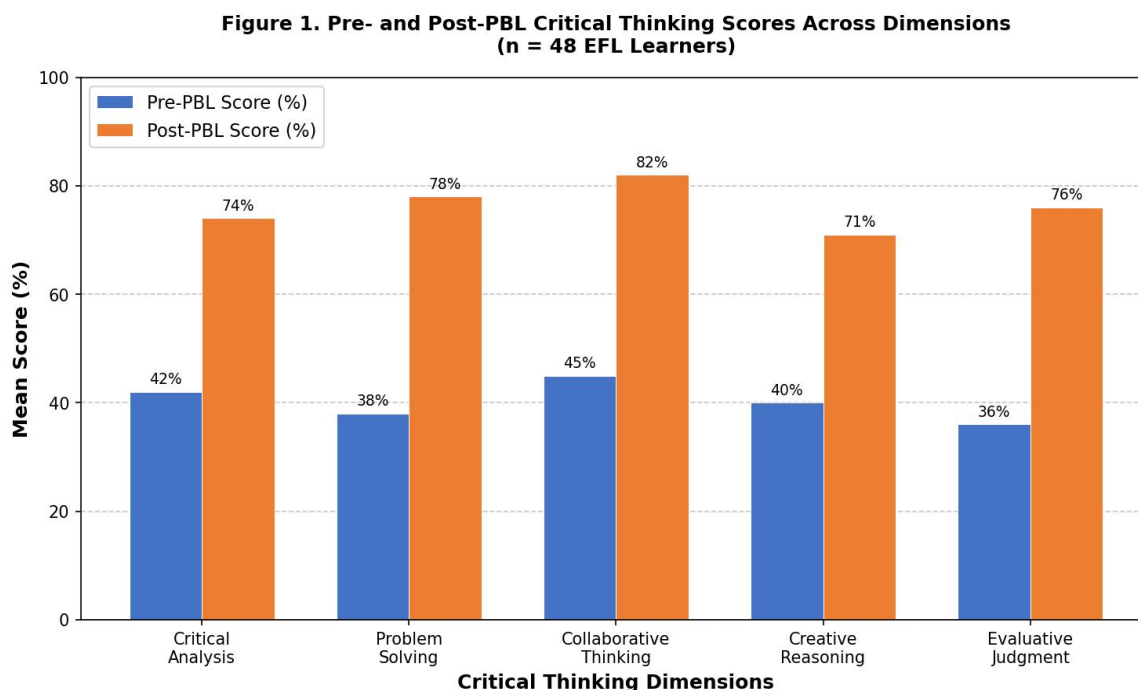


Figure 1. Pre- and Post-PBL Critical Thinking Scores Across Five Dimensions (n = 48 EFL Learners)

Thematic analysis of learner journals and teacher observations identified three overarching themes: cognitive discomfort as a catalyst for growth, the role of language in mediating thought, and peer dialogue as a site of critical development. Regarding the first theme, many learners initially expressed discomfort with the ambiguity and open-endedness inherent in project tasks. One participant noted in her week-two journal entry that she had always expected a single correct answer but that the project forced her to consider multiple perspectives simultaneously, a tension she ultimately described as uncomfortable but productive[4].

The second theme addressed an insight repeatedly noted by participants: that communicating ideas in English required a precision and explicitness that surfaced implicit assumptions and forced more careful reasoning. Several learners observed that translating their thoughts into English compelled them to organize their thinking more systematically, suggesting that the additional cognitive load of cross-linguistic processing, rather than simply impeding thought, may have enhanced metacognitive monitoring.

The third theme, peer dialogue as a site of critical development, was particularly prominent in activities involving debate and collaborative case analysis. Learners frequently cited disagreements with teammates as moments of significant learning, reporting that being challenged to defend their position with evidence, rather than assertion, represented a qualitative shift in their reasoning habits. These qualitative findings corroborate and extend the quantitative results, providing plausible process-level explanations for the observed score gains.

This study provides robust empirical support for the integration of Project-Based Learning activities into EFL curricula as a means of fostering critical thinking competence. Across five structured project activities implemented over twelve weeks, undergraduate EFL learners demonstrated statistically significant and practically meaningful gains in all five critical thinking dimensions assessed. Qualitative evidence further illuminates the mechanisms driving these gains, pointing to productive cognitive discomfort, metalinguistic awareness, and peer-mediated argumentation as key developmental processes[6].

These findings carry practical implications for EFL educators and curriculum designers. Incorporating PBL does not necessitate abandoning language-focused objectives; rather, the evidence suggests that the authentic communicative demands of project work simultaneously advance both critical thinking and language development. Teacher education programs should accordingly include preparation for facilitating inquiry-based learning, managing collaborative dynamics, and providing formative feedback on both reasoning processes and linguistic production.

Limitations of this study include its relatively short duration, single institutional setting, and reliance on a single critical thinking instrument. Future research should investigate the sustainability of these gains over longer timeframes, examine PBL's effects across different EFL proficiency levels, and explore culturally responsive adaptations of project designs to better align with diverse learner contexts. Longitudinal and cross-cultural comparative studies would considerably enrich the evidence base on which practitioners can draw.

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