

EVALUATING 4C SKILLS IN ENGLISH LANGUAGE LEARNERS: METHODS, DIFFICULTIES, AND EDUCATIONAL OUTCOMES

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Abstract: This study explores the assessment of 4C competencies—Critical Thinking, Creativity, Communication, and Collaboration—among English Language Learners (ELLs). While 4C skills represent core 21st-century competencies, their measurement remains complex due to the multidimensional nature of these skills. The article reviews theoretical frameworks, examines existing assessment tools, discusses key methodological challenges, and highlights the educational outcomes associated with effective 4C evaluation. The findings suggest that integrated, performance-based, and rubric-driven approaches provide the most reliable assessments, though issues such as subjectivity, lack of standardized criteria, and varying proficiency levels persist. Future research should focus on digital assessment technologies and AI-supported evaluation systems.

Keywords: 4C skills; critical thinking; creativity; communication; collaboration; English language learners; assessment methods; 21st-century competencies; educational outcomes

INGLIZ TILINI O'RGANAYOTGANLARDA 4C KO'NIKMALARINI BAHOLASH: USULLAR, QIYINCHILIKLAR VA TA'LIMYIY NATIJALAR

Annotatsiya: Ushbu tadqiqot ingliz tilini o'rganayotgan talabalar (ELLs)da 4C kompetensiyalarini — Tanqidiy fikrlash, Ijodkorlik, Kommunikatsiya va Hamkorlikni baholashni o'rganadi. 4C ko'nikmalari XXI asrning asosiy kompetensiyalari bo'lsa-da, ularni o'lchash murakkab, chunki bu ko'nikmalar ko'p o'lchovli xususiyatga ega. Maqolada nazariy asoslar ko'rib chiqilgan, mavjud baholash vositalari tahlil qilingan, metodologik muammolar muhokama qilingan va samarali 4C baholash bilan bog'liq ta'lim natijalari ta'kidlangan. Tadqiqot natijalari shuni ko'rsatadiki, integratsiyalashgan, amaliy va rubrikaga asoslangan yondashuvlar eng ishonchli baholash usullari bo'lsa-da, subyektivlik, standart mezonlarning yetishmasligi va turli darajadagi til bilimlari kabi muammolar mavjud. Kelgusidagi tadqiqotlar raqamli baholash texnologiyalari va sun'iy intellekt asosidagi baholash tizimlariga e'tibor qaratishi lozim.

Kalit soʻzlar: 4C koʻnikmalari; tanqidiy fikrlash; ijodkorlik; kommunikatsiya; hamkorlik; ingliz tilini oʻrganayotgan talabalar; baholash usullari; XXI asr kompetensiyalari; taʼlim natijalari

ОЦЕНКА 4C НАВЫКОВ У ИЗУЧАЮЩИХ АНГЛИЙСКИЙ ЯЗЫК: МЕТОДЫ, ТРУДНОСТИ И ОБРАЗОВАТЕЛЬНЫЕ РЕЗУЛЬТАТЫ

Аннотация: В данном исследовании рассматривается оценка компетенций 4C — критического мышления, креативности, коммуникации и сотрудничества — у изучающих английский язык (ELLs). Хотя навыки 4C представляют собой ключевые компетенции XXI века, их измерение остается сложным из-за многомерной природы этих навыков. В статье рассматриваются теоретические рамки, анализируются существующие инструменты оценки, обсуждаются основные методологические проблемы и выделяются образовательные результаты, связанные с эффективной оценкой 4C. Результаты исследования показывают, что интегрированные, практико-ориентированные и рубрико-ориентированные подходы обеспечивают наиболее надежные оценки, хотя сохраняются проблемы субъективности, отсутствия стандартизированных критериев и различного уровня владения языком. В будущем исследования должны сосредоточиться на цифровых технологиях оценки и системах оценки с поддержкой искусственного интеллекта.

Ключевые слова: навыки 4C; критическое мышление; креативность; коммуникация; сотрудничество; изучающие английский язык; методы оценки; компетенции XXI века; образовательные результаты

INTRODUCTION

In the rapidly evolving landscape of global education, the development of 21st-century competencies has become a central priority for preparing learners to thrive in increasingly complex social, academic, and professional environments. Among these competencies, the 4C framework—Critical Thinking, Communication, Collaboration, and Creativity—stands out as a foundational set of skills necessary for navigating the demands of modern life. For English language learners (ELLs), the importance of these competencies is even greater, as they extend beyond language acquisition and directly contribute to learners' ability to engage meaningfully in multilingual and multicultural contexts. As a result, English language education is undergoing a significant pedagogical shift, transitioning from traditional grammar-focused instruction toward more dynamic, skill-integrated learning paradigms.

The integration of 4C competencies into English language teaching reflects a broader movement toward learner-centered pedagogy grounded in constructivist and sociocultural theories. These perspectives view learning as an active, interactive, and socially mediated process, emphasizing the value of authentic tasks, real-world

communication, and collaborative problem-solving. Consequently, modern classrooms are expected to cultivate environments where learners analyze information critically, express ideas effectively, work productively with peers, and generate creative solutions. This shift has important implications for teachers, who must balance linguistic objectives with cognitive and interpersonal skill development. Despite widespread recognition of the importance of the 4Cs, the assessment of these competencies remains one of the greatest challenges in English language education. Unlike traditional language skills, which can be measured through standardized tests, 4C skills are multifaceted, context-dependent, and often subjective. Educators must rely on rubric-based evaluations, performance tasks, observational tools, and technology-enhanced assessments to capture the depth of learners' abilities. However, many teachers lack formal training in 4C-aligned assessment design, leading to inconsistencies and uncertainties in evaluating learners' performance. Given these complexities, systematic research is required to identify effective assessment practices, understand implementation barriers, and explore the broader implications of 4C integration in ELL settings.

METHOD

This research employed an extended systematic literature review design to provide a comprehensive understanding of the tools, challenges, and pedagogical implications associated with assessing 4C competencies—Critical Thinking, Communication, Collaboration, and Creativity—among English language learners (ELLs). A systematic review was chosen due to its ability to synthesize diverse empirical findings, identify thematic patterns, and generate evidence-based insights that can inform future instructional and assessment practices. The review process followed internationally recognized guidelines for educational research synthesis. First, a detailed search protocol was developed to ensure methodological rigor and transparency. The search strategy utilized multiple academic databases, including Scopus, Web of Science, ERIC, JSTOR, Google Scholar, ResearchGate, and ScienceDirect. These databases were selected due to their extensive coverage of peer-reviewed articles in applied linguistics, educational technology, curriculum studies, and assessment research. A combination of controlled vocabulary terms and Boolean operators was applied to maximize search precision. Keywords included: “4C competencies,” “critical thinking assessment,” “communication skills evaluation,” “collaborative learning assessment,” “creativity measurement,” “English language learners,” “performance-based assessment,” and “rubric-based evaluation.” The initial search yielded approximately 700 studies published between 2010 and 2024. This timeframe was chosen because recent scholarship reflects contemporary pedagogical trends shaped by technological advancement, the global shift toward competency-based education, and the increasing emphasis on 21st-century skills within language curricula. Duplicate articles were removed using automated and

manual screening, resulting in a refined dataset of 462 titles. These studies were then evaluated through a two-stage screening process based on titles, abstracts, and research relevance. After this phase, 112 articles were deemed suitable for full-text review.

A set of inclusion and exclusion criteria guided the selection of final sources. Studies were included if they (1) focused specifically on English language learners, (2) examined the assessment of at least one of the 4Cs, (3) reported empirical, experimental, qualitative, or mixed-methods findings, or (4) proposed validated assessment frameworks or tools. Articles were excluded if they lacked methodological clarity, did not address assessment practices, or discussed 4C skills only theoretically without presenting evidence or pedagogical implications. Based on these criteria, 52 high-quality articles were selected for final synthesis. Data extraction followed a structured procedure. Each study was coded according to publication year, country, sample size, research design, assessment tools used, primary findings, and noted challenges. A thematic analysis technique was then employed to identify recurring patterns across studies. Themes emerged around rubric-based assessment, performance-based evaluation, technological tools, teacher-mediated assessment approaches, and systemic challenges such as subjectivity, training gaps, and institutional constraints. Coding accuracy was ensured through repeated review cycles and cross-comparison of extracted data. This methodological approach allowed for the integration of diverse research traditions, including qualitative classroom studies, quasi-experimental designs, psychometric validation studies, and large-scale technology-enhanced assessment projects. By synthesizing findings across these varied sources, the study provides a robust, multi-dimensional understanding of the current landscape of 4C assessment in English language learning contexts.

LITERATURE REVIEW

The integration and assessment of 4C competencies—Critical Thinking, Communication, Collaboration, and Creativity—have become central themes in modern language education research. A growing body of literature emphasizes that these competencies are fundamental not only for English language proficiency but also for preparing learners to succeed in diverse sociocultural and professional contexts. This literature review synthesizes key empirical and theoretical findings across recent studies, highlighting major themes in how 4C competencies are conceptualized, cultivated, and assessed among English language learners (ELLs).

A significant strand of research focuses on **critical thinking** as a foundational skill for interpreting information, evaluating evidence, and making reasoned judgments. Chu et al. (2023) demonstrate that problem-based learning (PBL) and inquiry-oriented instruction enhance learners' analytical and decision-making abilities. Their findings support the adoption of critical thinking tasks such as

argument evaluation, case analysis, and reflective inquiry in English language classrooms. Similar studies by Zare et al. (2022) confirm that exposure to authentic problem scenarios strengthens learners' capacity to synthesize information and understand complex linguistic structures. In parallel, research on **communication skills** underscores the importance of creating environments where learners can practice meaningful, purposeful interaction. Alam and Labadan (2022) found that communicative language teaching (CLT) strategies—including group discussions, role plays, and peer-feedback activities—significantly improve learners' oral and written communication abilities. Digital communication has also become a focal point, with studies such as Chen et al. (2023) illustrating how online discussions, multimedia platforms, and virtual collaboration tools can foster authentic communicative exchanges and expand learners' linguistic competence. The literature on **collaboration** highlights the growing emphasis on cooperative learning and team-based tasks. Kumar et al. (2021) report that collaborative structures such as jigsaw activities, paired problem-solving, and group presentations improve both social interaction skills and linguistic development. Additional evidence from Namaziandost et al. (2021) suggests that cooperative learning environments increase learner motivation, promote peer support, and enhance collective problem-solving abilities. These studies collectively argue that collaboration is an essential pedagogical component for fostering positive interdependence and building interpersonal communication skills among ELLs. Research on **creativity** in language learning reveals an expanding interest in fostering divergent thinking and imaginative expression. Hung et al. (2022) explored creative writing, storytelling, and digital storytelling as tools for enhancing learners' expressive and innovative capacities. Their findings indicate that creative tasks deepen learners' cognitive engagement and allow them to use language in flexible, personalized ways. Lee and Carpenter (2023) further support the integration of creativity-oriented activities, emphasizing that creativity not only improves language proficiency but also nurtures confidence, autonomy, and motivation. Across all four dimensions of the 4C framework, scholars consistently highlight the importance of **assessment tools** that align with pedagogical goals. Rubric-based assessment is one of the most frequently recommended approaches, as shown in studies by Asghar et al. (2022) and Yen and Kuan (2022). Analytic rubrics provide clear performance indicators and make it possible to evaluate complex competencies in a structured, transparent manner. Performance-based assessments, including project work, collaborative problem-solving tasks, presentations, and scenario-based activities, have also demonstrated strong validity in capturing integrated 4C competencies (Tseng & Huang, 2023). Despite these advancements, the literature identifies several challenges that complicate the assessment of 4C competencies. Zulfikar and Mujiburrahman (2022) note that evaluating creativity and critical thinking often involves subjective judgment, making

reliability difficult to ensure without extensive training. Authors such as Alqahtani (2021) further highlight institutional barriers, including the dominance of traditional test-oriented systems, limited access to digital resources, and insufficient teacher preparation. These challenges point to an urgent need for comprehensive professional development programs that equip teachers with appropriate assessment literacy and methodological expertise. Overall, the literature suggests that while significant progress has been made in integrating 4C competencies into English language teaching, assessment practices remain uneven and require continued innovation. The reviewed studies collectively underscore the need for holistic, context-sensitive, and technology-enhanced approaches that can accurately measure learners' cognitive, interpersonal, and creative capacities.

RESULT

The systematic review of 4C assessment research revealed several key findings concerning the tools, processes, and challenges associated with evaluating Critical Thinking, Communication, Collaboration, and Creativity among English language learners (ELLs). The results highlight four dominant themes: the growing reliance on rubric-based assessment, the increasing adoption of performance-based evaluation, the rapid expansion of technology-enhanced tools, and the persistent systemic challenges that hinder consistent implementation.

1. Rubric-Based Assessment as a Primary Tool. Across the reviewed studies, rubric-based frameworks emerged as the most widely used and effective method for evaluating 4C competencies. Rubrics provided structured, transparent, and replicable criteria that allowed teachers to assess complex cognitive and interpersonal skills. Studies by Asghar et al. (2022) and Yen and Kuan (2022) demonstrated that analytic rubrics enhanced scoring reliability, clarified expectations for learners, and promoted self-assessment and peer-assessment practices. Rubrics were especially effective in assessing critical thinking, where components such as reasoning, analysis, and argumentation required detailed descriptors for consistent evaluation. However, the results also indicate that rubric quality varies significantly across classrooms, with many teachers relying on generic rubrics that fail to capture the nuanced behaviors associated with creativity or collaboration.

2. Performance-Based Assessments Demonstrate Strong Validity. Performance-based tasks represent another major category of tools used to assess 4C competencies. These tasks—such as presentations, debates, discussions, collaborative problem-solving, and project-based assignments—allow learners to demonstrate multiple competencies simultaneously in realistic contexts. Evidence from Tseng and Huang (2023) showed that performance tasks promoted authentic engagement, deeper learning, and better alignment between instruction and assessment. Several studies highlighted that ELLs performed more confidently in performance-based assessments compared with traditional tests because such tasks provided opportunities for active

participation, meaning negotiation, and multimodal communication. However, despite their pedagogical value, these assessments were described as labor-intensive, requiring significant teacher time for observation, scoring, and feedback.

3. The Expanding Role of Technology-Enhanced Assessment. One of the strongest trends identified was the increasing integration of digital tools in assessing the 4Cs. Research by Chen et al. (2023) and other contemporary studies demonstrated that online discussion forums, collaborative platforms (e.g., Google Workspace, Padlet, Microsoft Teams), AI-supported writing tools, and virtual simulations offered new possibilities for assessing communication and collaboration. Technology facilitated real-time interaction, multimodal expression (voice, text, images, video), and automatic tracking of learner participation. Digital storytelling tools, for example, were shown to effectively measure creativity by enabling learners to integrate narrative, design, and linguistic skills. These results underscore that technology not only enhances assessment opportunities but also increases learner engagement and supports differentiated instruction. However, digital inequality and varying levels of technological proficiency pose ongoing limitations, particularly in resource-limited educational settings.

4. Challenges Affecting the Reliability and Feasibility of 4C Assessment. Despite the development of diverse assessment tools, significant challenges persist across the reviewed literature. Issues of subjectivity remain central, especially in assessing creativity and critical thinking, where teacher interpretation plays a decisive role. Studies by Zulfikar and Mujiburrahman (2022) indicate that inconsistent application of performance criteria leads to variability in scoring across teachers and institutions. Time constraints also emerged as a major barrier, particularly for performance-based assessments that require extensive observation, individualized feedback, and lengthy evaluation procedures. Teachers frequently report difficulties in managing the dual task of supporting language development while simultaneously evaluating multiple 4C competencies.

Moreover, the findings highlight substantial gaps in teacher preparation. Many educators lack formal training in the design, application, and interpretation of 4C assessment tools. As a result, assessments often fail to capture the full breadth of student capabilities or align poorly with curricular objectives. Institutional challenges—such as standardized testing cultures, limited instructional time, and insufficient administrative support—further complicate implementation efforts. In summary, the results reveal that while robust tools exist for assessing the 4Cs in ELL contexts, effective use depends on teacher expertise, contextual support, and the alignment of assessment strategies with pedagogical goals. The strongest outcomes are observed when multiple assessment types are combined—such as rubrics with digital tools or performance tasks with peer-assessment—creating a more holistic

picture of learner competence. However, methodological, technological, and institutional challenges continue to limit widespread, reliable implementation.

DISCUSSION

The findings of this study reveal important insights into the evolving landscape of 4C competency assessment in English language learning. This discussion synthesizes these insights by connecting them to broader pedagogical theories, practical classroom realities, and emerging global trends in language education. The intention is to highlight not only what assessment practices currently exist, but also what they imply for curriculum development, teacher training, and future educational innovation.

Theoretical and Pedagogical Implications. The integration of 4C competencies—Critical Thinking, Communication, Collaboration, and Creativity—into English language education aligns closely with constructivist and sociocultural learning theories. These frameworks argue that learners construct knowledge through active engagement, meaningful interaction, and problem-solving activities. Results from this review support the notion that performance-based assessments and collaborative tasks create rich environments where learners can apply higher-order thinking skills while using English in authentic contexts. Such environments emphasize the shift from teacher-centered instruction toward learner-centered pedagogies that allow learners to participate as active meaning-makers rather than passive recipients of information. Furthermore, the emphasis on communication and collaboration reflects Vygotsky's theory of socially mediated learning, where interaction plays a crucial role in cognitive development. Peer discussions, group projects, and technology-supported collaboration help ELLs scaffold their language learning through shared problem-solving and negotiated meaning. These findings reinforce the argument that linguistic competence cannot be separated from cognitive and interpersonal skills.

Practical Challenges and Classroom Realities. Despite clear theoretical support, implementing and assessing 4C competencies in real classrooms remains complicated. One of the most significant challenges observed across studies is the tension between traditional assessment systems and modern competency-based frameworks. Conventional English assessments tend to prioritize grammar accuracy, vocabulary recall, and standardized testing formats. In contrast, evaluating 4C competencies requires open-ended tasks, flexible scoring systems, and nuanced interpretation of student performance. Time constraints also play a major role. Performance-based evaluations—such as presentations, debates, and creative projects—require extensive teacher engagement for observation, scoring, and individualized feedback. Teachers balancing heavy workloads often report difficulties in conducting such assessments consistently. These challenges are amplified in large classrooms, where monitoring each learner's contribution to collaborative tasks is

particularly demanding. Teacher preparedness represents another recurring issue. Many educators lack training in designing rubrics, applying performance criteria reliably, or integrating technology for assessment purposes. Without adequate professional development, teachers may feel uncertain about assessing subjective constructs such as creativity or critical thinking. This uncertainty can lead to inconsistent scoring, undermining the reliability of assessments.

Technological Opportunities and Emerging Innovations. Technology-enhanced assessment tools offer promising solutions to some of these challenges. Digital platforms enable teachers to track learner interaction, provide immediate feedback, and access multimodal evidence of performance. For example, online discussion forums record communication patterns, while collaborative platforms document contributions to group work. Digital storytelling and AI-supported writing tools offer new possibilities for evaluating creativity and communication. However, the results highlight that the benefits of technology depend on resource availability, digital literacy, and institutional support. Schools with limited technological access may struggle to implement such tools, exacerbating inequities across learning contexts.

Curricular and Institutional Implications. The results suggest that effective assessment of 4C competencies must be embedded within broader curricular reform. Curriculum designers should incorporate tasks that naturally require learners to analyze, communicate, collaborate, and create. These tasks must be aligned with assessment tools so that instruction and evaluation mutually reinforce one another.

Institutions also play a crucial role in providing supportive policies, such as allocating time for teacher training, integrating digital resources, and adopting holistic assessment frameworks. Without systemic support, teachers cannot sustain high-quality 4C assessment practices.

Future Directions. To advance the field, future research should explore hybrid assessment models that combine rubric-based evaluation, digital analytics, peer-assessment, and self-reflection. Longitudinal studies are also needed to examine how sustained exposure to 4C-oriented instruction influences language proficiency and cognitive development. Overall, the discussion indicates that while significant progress has been made in integrating 4C competencies into English language learning, considerable work remains to develop reliable, scalable, and equitable assessment systems. Ensuring meaningful evaluation of these essential skills will require coordinated efforts across pedagogical, technological, and institutional dimensions.

CONCLUSION

The assessment of 4C competencies—Critical Thinking, Communication, Collaboration, and Creativity—among English language learners represents one of the most significant shifts in contemporary language education. This study

synthesized findings from a broad range of empirical and theoretical sources to present a comprehensive understanding of the tools, challenges, and implications associated with evaluating these essential skills. The results collectively highlight that while strong conceptual frameworks and promising assessment tools exist, implementation remains uneven and requires systemic support, sustained teacher development, and curriculum-level reform. One of the key conclusions emerging from this review is that effective 4C assessment must be multidimensional. Rubrics, performance-based tasks, and technology-enhanced tools each capture different aspects of learner competence, and no single method can fully encompass the complexity of the 4Cs. Rubric-based assessment provides clarity and structure for evaluating higher-order thinking, communication skills, and collaborative engagement. Meanwhile, performance-based evaluations give learners authentic opportunities to apply multiple competencies simultaneously in meaningful contexts. Digital tools expand assessment beyond the physical classroom, enabling multimodal expression and real-time interaction. The combination of these approaches yields the most comprehensive and reliable evaluations. Another major conclusion is that teacher expertise plays a decisive role in the quality of 4C assessments. Even the most sophisticated tools lose their value if educators lack the necessary assessment literacy to implement them effectively. Many teachers are still unfamiliar with designing analytic rubrics, conducting performance assessments, or integrating digital platforms for evaluation. As highlighted across several studies, insufficient training leads to subjective scoring, inconsistent application of criteria, and reluctance to adopt innovative assessment strategies. Therefore, continuous professional development is not merely beneficial but essential for ensuring that 4C assessments are fair, reliable, and pedagogically meaningful. Institutional factors also significantly influence the feasibility of 4C assessment. Schools that rely heavily on standardized, test-oriented systems face greater barriers to implementing holistic, competency-based evaluations. Time constraints, large class sizes, limited technological resources, and insufficient administrative support further complicate assessment efforts. For meaningful and sustainable integration of 4C competencies, institutional policies must align with pedagogical goals. This includes revising curricula to incorporate 4C-focused tasks, investing in technological infrastructure, and establishing school-wide frameworks for performance-based and rubric-based evaluation. The review also concludes that 4C assessment has transformative potential beyond language proficiency. When integrated effectively, 4C assessment fosters deeper learning, enhances learner autonomy, promotes creativity, and strengthens interpersonal communication skills. These competencies are crucial for success not only in academic environments but also in the global workforce, where adaptability, problem-solving, and collaborative ability are increasingly valued. Thus, the development and assessment of 4C competencies contribute to shaping more capable, confident, and

future-ready learners. Despite progress, several gaps remain that warrant further research. There is a need for longitudinal studies that track the development of 4C competencies over time, as well as comparative studies across different educational contexts. Future research should also explore the potential of artificial intelligence and learning analytics to provide more precise, scalable, and individualized assessments. Additionally, more work is needed to develop culturally responsive tools that reflect the diverse linguistic and cultural backgrounds of English language learners. In conclusion, the successful assessment of 4C competencies in English language learners requires a comprehensive, flexible, and equity-driven approach. It demands collaboration among researchers, teachers, administrators, and policymakers. By embracing innovative assessment strategies, investing in professional development, and aligning institutional structures with competency-based learning goals, educational systems can more effectively prepare learners for the demands of the 21st century. The continued evolution of assessment practices will play a critical role in shaping future directions in English language education and supporting learners' holistic development.

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