The analysis indicates that AI-driven adaptive systems reduce the time required to master core subjects by approximately 30–40%. This is achieved through the elimination of redundant materials that the student has already mastered.

• Result: Students show higher retention rates when the content is dynamically adjusted to their cognitive load.

2. Transformation of the Teacher's Role. Our analysis shows a significant shift in the "Teacher-Student" dynamic. Data suggests that AI can automate up to 60% of administrative and repetitive tasks, such as:

• Objective grading (multiple-choice, basic coding, etc.).

• Attendance and progress tracking.

• Routine query handling through Chatbots.

• Result: Teachers are transitioning from "lecturers" to "facilitators" and "mentors," focusing on the social-emotional development of students.

Conclusions. The theoretical exploration of Artificial Intelligence in the educational process leads to the conclusion that AI is not merely a supplementary tool but a fundamental paradigm shift. The integration of AI aligns with modern pedagogical goals by enabling true personalization, where the curriculum bends to the student's needs rather than forcing the student to conform to a rigid structure.

The research demonstrates that while AI excels at data processing, pattern recognition, and administrative automation, it does not replace the human element of teaching. Instead, it elevates the teacher's role to that of a high-level mentor and emotional guide. However, the theoretical success of AI implementation is heavily dependent on the ethical management of data and the narrowing of the digital divide. In summary, AI provides the infrastructure for a more inclusive, efficient, and data-driven educational future.

Suggestions. Based on the results of this study, the following suggestions are proposed for educational institutions and policymakers:

1. Investment in "AI Literacy": It is suggested that educational systems incorporate AI literacy not only for students but as a mandatory part of professional development for educators. Teachers must understand how to interpret AI analytics to better support their students.

2. Ethical Framework Development: Institutions should establish clear "Ethical AI Use Policies" that prioritize student data privacy and transparency in how algorithms make educational decisions.

3. Hybrid Pedagogical Design: Curricula should be redesigned to be "Hybrid-First," where AI handles routine information delivery and assessment, while classroom time is dedicated to collaborative projects, critical thinking, and social-emotional learning.

References:

(1). Holmes W., Bialik M., & Fadel C. (2019). Artificial Intelligence in Education: Promises and Implications for Teaching and Learning. Center for Curriculum Redesign.

(2). Luckin R. (2018). Machine Learning and Human Intelligence: The Future of Education in the 21st Century. UCL Institute of Education Press.

(3). Selwyn N. (2019). Should Robots Replace Teachers? Polity Press.

(4). Siemens G. (2013). Learning Analytics: The Emergence of a Discipline. American Behavioral Scientist.

(5). UNESCO (2021). AI and Education: Guidance for Policy-Makers.

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ENGLISH LANGUAGE TEACHERS' READINESS FOR IMPLEMENTING 4C COMPETENCIES IN HIGHER EDUCATION

Annotation. *This study investigates English language teachers' readiness for implementing 4C competencies in higher education institutions. The research focuses on four essential competencies of 21st-century education: critical thinking, creativity, communication, and collaboration. The study employed questionnaires, interviews, and survey analysis methods. The research was conducted among English language teachers from the National University of Uzbekistan, Samarkand State Institute of Foreign Languages, and Karakalpak State University. A total of 47 teachers participated in the study. The findings revealed that teachers generally recognize the importance of 4C competencies in English language education. Communication and collaboration competencies demonstrated relatively high implementation levels,*

whereas creativity and critical thinking activities remained comparatively limited in classroom practice. The study also identified several methodological and pedagogical challenges affecting competency-based teaching.

Keywords: *4C competencies, English language teaching, competency-based education, critical thinking, creativity, communication, collaboration, higher education.*

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OLIY TA'LIMDA INGLIZ TILI O'QITUVCHILARINING 4C KOMPETENSIYALARINI JORIY ETISHGA TAYYORLIGI

Annotatsiya. *Mazkur maqolada oliy ta'lim muassasalarida faoliyat yuritayotgan ingliz tili o'qituvchilarining 4K kompetensiyalarini amalga oshirishga tayyorligi tahlil qilinadi. Tadqiqot 21-asr ta'limining muhim kompetensiyalari hisoblangan tanqidiy fikrlash, kreativlik, kommunikatsiya va hamkorlik ko'nikmalariga qaratilgan. Tadqiqotda anketa, intervyu va so'rovnoma metodlaridan foydalanildi. Tadqiqot O'zbekiston Milliy universiteti, Samarqand davlat Chet tillari instituti hamda Qoraqalpoq davlat universiteti ingliz tili o'qituvchilari ishtirokida olib borildi. Tadqiqotda jami 47 nafar o'qituvchi qatnashdi. Natijalar ingliz tili o'qituvchilari 4K kompetensiyalarining ahamiyatini yaxshi anglashini ko'rsatdi. Kommunikatsiya va hamkorlik kompetensiyalari yuqori darajada qo'llanilishi aniqlangan bo'lsa, kreativlik va tanqidiy fikrlash faoliyatlari nisbatan kamroq qo'llanilishi kuzatildi. Shuningdek, tadqiqot davomida kompetensiyaga asoslangan ta'limni amalga oshirishga ta'sir qiluvchi metodik va pedagogik muammolar aniqlandi.*

Kalit so'zlar: *4K kompetensiyalari, ingliz tili ta'limi, kompetensiyaga asoslangan ta'lim, tanqidiy fikrlash, kreativlik, kommunikatsiya, hamkorlik, oliy ta'lim.*

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ГОТОВНОСТЬ ПРЕПОДАВАТЕЛЕЙ АНГЛИЙСКОГО ЯЗЫКА К ВНЕДРЕНИЮ 4С КОМПЕТЕНЦИЙ В ВЫСШЕМ ОБРАЗОВАНИИ

Аннотация. *В данной статье анализируется готовность преподавателей английского языка высших учебных заведений к внедрению 4К компетенций. Исследование посвящено четырем ключевым компетенциям образования XXI века: критическому мышлению, креативности, коммуникации и сотрудничеству. В исследовании использовались методы анкетирования, интервью и опроса. Исследование было проведено среди преподавателей английского языка Национального университета Узбекистана, Самаркандского государственного института иностранных языков и Каракалпакского государственного университета. В исследовании приняли участие 47 преподавателей. Результаты показали, что преподаватели хорошо осознают важность 4К компетенций в преподавании английского языка. Наиболее активно реализуются компетенции коммуникации и сотрудничества, тогда как креативность и критическое мышление применяются сравнительно реже. Также были выявлены методические и педагогические трудности, влияющие на внедрение компетентностного подхода.*

Ключевые слова: *4К компетенции, преподавание английского языка, компетентностный подход, критическое мышление, креативность, коммуникация, сотрудничество, высшее образование.*

Introduction. In the 21st century, rapid globalization, technological advancement, and digital transformation have significantly influenced educational systems worldwide. Modern education no longer focuses only on transferring theoretical knowledge; instead, it emphasizes the development of practical competencies and intellectual skills necessary for successful participation in professional and social life [1; 15 p.].

Today, competency-based education has become one of the leading approaches in higher education. Researchers emphasize that modern specialists should possess not only professional knowledge but also critical thinking, creativity, communication, and collaboration skills, commonly known as 4C competencies [2;24 p.].

According to Trilling and Fadel, "21st-century learning environments must prepare learners for complex communication, teamwork, and problem-solving situations" [3;48 p.]. The authors argue that educational institutions should move beyond traditional memorization-based teaching and create learner-centered classrooms that support innovative thinking and active participation.

The importance of 4C competencies is especially significant in English language education because foreign language learning naturally involves interaction, discussion, collaborative activities, and creative

expression. Harmer notes that communicative language teaching encourages students to use language meaningfully through real-life communication and interactive classroom activities [4;67 p.].

Furthermore, Richards states that modern English language teachers should organize learning environments where students actively participate in discussions, problem-solving tasks, and collaborative learning processes [5;39 p.]. Such approaches help learners improve both language proficiency and higher-order thinking skills.

Despite the growing importance of competency-based education, many teachers still experience difficulties integrating 4C competencies into classroom practice. Traditional teaching methods, lack of methodological preparation, insufficient professional development opportunities, and limited practical resources remain major challenges in higher education systems [6;51 p.].

Recent studies on educational reform in Uzbekistan increasingly emphasize the transition from traditional knowledge-centered instruction toward competency-based learning approaches. According to Qurbonova and Djumabayeva, contemporary curriculum development should prioritize integrating 4C competencies to improve learners' adaptability, communicative abilities, and higher-order thinking skills in modern educational contexts [11;24 p.].

The researchers further argue that successful competency-based reform depends on the effective coordination of curriculum content, teaching methodologies, and assessment practices to foster active learning and practical skill development [11;31 p.].

In Uzbekistan, current educational reforms and modernization processes in higher education also emphasize the necessity of innovative pedagogy and competency-oriented teaching approaches. Especially in foreign language education, there is an increasing need for teachers who can effectively develop students' communication, creativity, critical thinking, and collaboration skills through interactive teaching methods.

Therefore, investigating English language teachers' readiness for implementing 4C competencies has become an important pedagogical issue. This study aims to analyze the necessity of developing 4C competencies among English language teachers in higher education institutions based on questionnaires, interviews, and survey analysis conducted among teachers from the National University of Uzbekistan, Samarkand State Institute of Foreign Languages, and Karakalpak State University.

Literature Review. The concept of 21st-century skills has become one of the leading topics in modern educational research. Contemporary education systems increasingly focus not only on theoretical knowledge but also on developing practical competencies necessary for successful participation in professional and social life [1;18 p.].

Among these competencies, the 4C framework — critical thinking, creativity, communication, and collaboration – occupies a central position in competency-based education. According to the Partnership for 21st Century Learning, these competencies are considered essential for academic achievement, professional success, and lifelong learning [2;11 p.].

Trilling and Fadel emphasize that modern education should prepare learners for complex problem-solving situations and collaborative professional environments rather than traditional memorization-oriented instruction [3;52 p.]. The authors state that the educational process should support innovative thinking, teamwork, and active learner participation.

Critical thinking is regarded as one of the most important intellectual competencies in contemporary pedagogy. Paul and Elder define critical thinking as an intellectually disciplined process of analyzing, evaluating, and interpreting information effectively [4;7 p.]. In foreign language education, critical thinking helps students express independent opinions, participate in discussions, and evaluate information critically.

Creativity also plays a significant role in modern educational environments. Robinson argues that creativity involves producing original ideas and applying innovative approaches to problem-solving situations [5;39 p.]. In English language classrooms, creativity can be developed through project-based learning, storytelling, role-play activities, debates, and interactive tasks.

Communication competency occupies a particularly important place in foreign language teaching. Harmer notes that communicative competence includes not only grammatical knowledge but also the ability to use language appropriately in authentic social contexts [6;84 p.]. Therefore, communicative language teaching approaches encourage active student participation and meaningful classroom interaction.

Collaboration is closely connected with social constructivist learning theory. Vygotsky emphasizes that cognitive development is strongly influenced by social interaction and cooperative learning processes [7;86 p.]. Collaborative classroom activities help learners improve teamwork abilities, interpersonal communication, and collective problem-solving skills.

Several researchers indicate that English language teaching naturally creates opportunities for implementing 4C competencies because language learning itself is based on communication, discussion, interaction, and idea exchange [8;31 p.]. Consequently, English language teachers are expected to organize learner-centered classrooms that support collaboration and creative learning.

The theoretical framework of 4C competencies demonstrates the interrelationship between critical thinking, creativity, communication, and collaboration in competency-based education. These competencies collectively contribute to student-centered learning, interactive teaching, problem-solving abilities, and language proficiency development in English language classrooms.

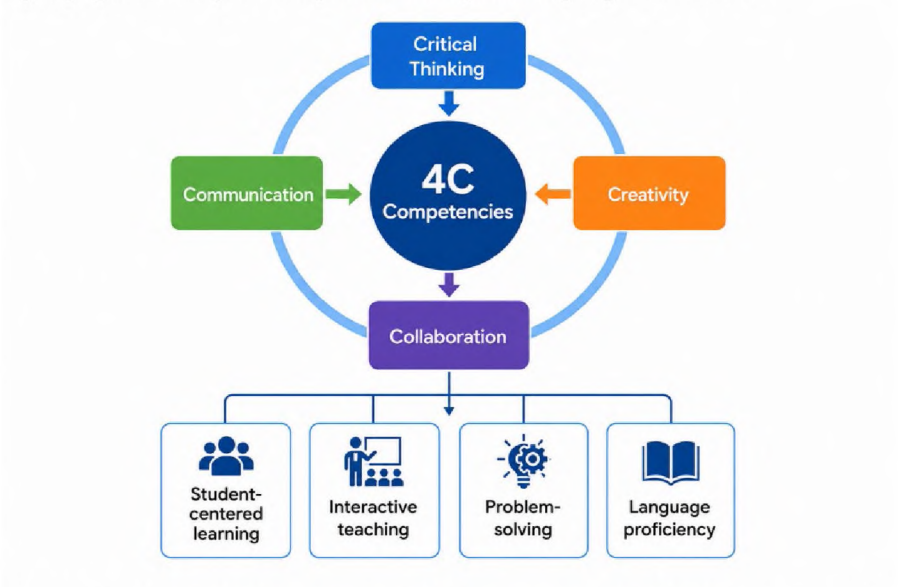


Figure 1. Theoretical Framework of 4C Competencies in English Language Teaching.

The diagram illustrates how the four core competencies of 21st-century education function together within modern pedagogical practice. The framework demonstrates that effective implementation of 4C competencies supports interactive learning environments and encourages students' active participation, independent thinking, and collaborative problem-solving processes.

Furthermore, the model highlights that English language teaching provides favorable conditions for integrating competency-based learning approaches through communication-oriented and learner-centered instructional strategies.

Despite the growing importance of competency-based education, many higher education teachers still experience difficulties integrating 4C competencies into classroom practice. Traditional teaching approaches, insufficient methodological preparation, lack of professional development opportunities, and limited innovative educational resources remain major challenges in higher education systems [9; p. 57].

Recent curriculum research in Uzbekistan also highlights the importance of shifting from knowledge-based education toward competency-oriented learning models. Qurbonova and Djumabayeva state that modern curriculum design should integrate communication, collaboration, critical thinking, and creativity as core learning outcomes in order to prepare learners for the demands of 21st-century education [11; 24 p.].

The authors further note that competency-based curriculum reform requires the alignment of curriculum objectives, instructional strategies, and assessment systems with real-world skill development and student-centered learning approaches [11;31 p.].

In Uzbekistan, ongoing educational reforms aimed at modernizing higher education have increased attention toward competency-based learning and innovative pedagogical approaches. However, empirical research focusing specifically on English language teachers' readiness for implementing 4C competencies remains limited. Therefore, this study seeks to investigate the necessity of developing 4C competencies among English language teachers in higher education institutions through survey and interview analysis.

Research Methodology. This study employed a mixed-method research design combining both qualitative and quantitative approaches in order to investigate English language teachers' readiness for implementing 4C competencies in higher education institutions. Mixed-method research is considered an

effective approach because it allows researchers to analyze educational phenomena from different perspectives and obtain more reliable results [1;214 p.].

The research was conducted among English language teachers from three higher education institutions in Uzbekistan:

- National University of Uzbekistan;
- Samarkand State Institute of Foreign Languages;
- Karakalpak State University.

A total of 47 English language teachers participated in the study, including 16 teachers from the National University of Uzbekistan, 17 teachers from Samarkand State Institute of Foreign Languages, and 14 teachers from Karakalpak State University.

Survey Questions and Results

Survey Questions	Yes	No
1. Are you familiar with 4C competencies?	39 (83%)	8 (17%)
2. Do you use collaborative activities in your classes?	35 (74%)	12 (26%)
3. Do your students need critical thinking skills?	44 (94%)	3 (6%)
4. Do you need professional training on 4C competencies?	41 (87%)	6 (13%)

Figure 2. Survey Questions Used in the Research.

The study utilized questionnaires, interviews, and survey methods as the primary data collection instruments. The questionnaire consisted of both closed-ended and open-ended questions designed to identify teachers' awareness of 4C competencies, classroom implementation practices, professional challenges, and methodological needs.

The survey questions were designed to investigate teachers' awareness of 4C competencies, their classroom implementation practices, and the challenges they experience while applying competency-based teaching approaches. The questionnaire also aimed to identify teachers' professional development needs related to creativity, critical thinking, communication, and collaboration in English language education.

The collected responses provided both quantitative and qualitative data for analyzing teachers' readiness for implementing 4C competencies in higher education classrooms.

Semi-structured interviews were conducted with selected participants to obtain deeper qualitative insights into teachers' experiences and attitudes toward competency-based education. According to Cohen, Manion, and Morrison, semi-structured interviews provide flexibility and allow participants to express their perspectives more openly during educational research [2;409 p.].

The survey questions mainly focused on the following aspects:

- teachers' understanding of 4C competencies;
- frequency of using collaborative and communicative activities;
- integration of creativity and critical thinking tasks into classroom instruction;
- challenges related to competency-based teaching;
- professional development needs for implementing innovative teaching approaches.

The collected quantitative data were analyzed using descriptive statistical methods, including percentage analysis and comparative interpretation. Qualitative interview responses were categorized thematically in order to identify recurring pedagogical problems and professional development needs among English language teachers.

The methodological approach of the study aimed to ensure the reliability and validity of the research findings through systematic data collection and analysis procedures [3;145 p.].

Analysis and Results. The analysis of the collected data demonstrated that English language teachers generally recognize the importance of 4C competencies in modern higher education. However, the

findings also revealed several methodological and practical challenges related to the implementation of competency-based teaching approaches in classroom practice.

The survey results indicated that the majority of respondents were familiar with the concept of 4C competencies and considered them essential for effective English language teaching. Most participants emphasized that communication and collaboration skills are frequently integrated into classroom activities because language learning naturally requires interaction and cooperative learning processes.

The analysis of the survey data demonstrated different levels of awareness and implementation of 4C competencies among English language teachers from various higher education institutions. The following diagram presents a comparative analysis of teachers' awareness levels, use of collaborative activities, and implementation of creative classroom practices across the participating universities.

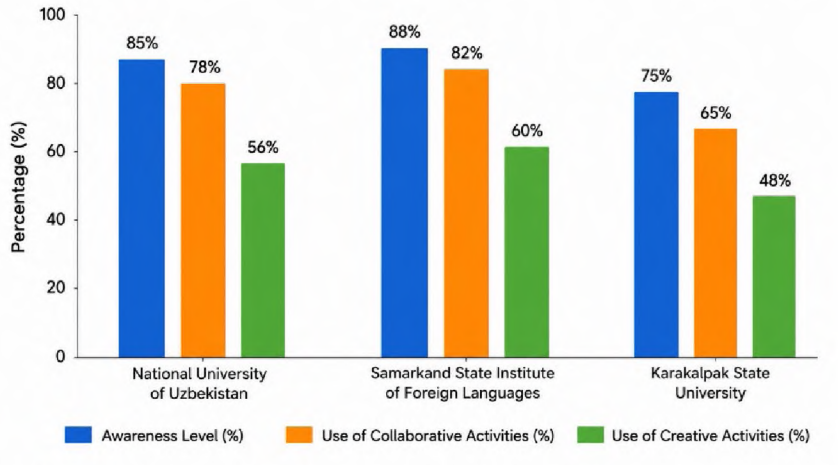


Figure 1. Comparative Analysis of 4C Competency Implementation Across Higher Education Institutions.

The diagram illustrates that teachers from Samarkand State Institute of Foreign Languages demonstrated the highest awareness level of 4C competencies, accounting for 88% of respondents. Teachers from the National University of Uzbekistan also showed a relatively high level of awareness (85%), while respondents from Karakalpak State University demonstrated comparatively lower results (75%).

Similarly, the use of collaborative activities was more frequently reported among teachers from foreign language-oriented institutions. Respondents from Samarkand State Institute of Foreign Languages demonstrated the highest percentage in collaborative classroom activities (82%), followed by the National University of Uzbekistan (78%). Karakalpak State University showed comparatively lower implementation levels (65%).

The implementation of creativity-oriented classroom activities demonstrated the lowest percentages across all institutions. Creativity-related practices accounted for 60% among teachers from Samarkand State Institute of Foreign Languages, 56% at the National University of Uzbekistan, and only 48% at Karakalpak State University.

These findings indicate that communication and collaboration competencies are more actively integrated into English language classrooms, whereas creativity-oriented teaching practices remain comparatively limited. The results also demonstrate that teachers from specialized foreign language institutions show relatively stronger implementation of competency-based teaching approaches compared to respondents from multidisciplinary universities.

Overall, the comparative results demonstrate that communication and collaboration competencies are more commonly integrated into English language teaching practice across all participating institutions, whereas creativity-oriented activities require further methodological support and professional development opportunities for teachers.

The findings also revealed noticeable differences in awareness levels and implementation practices among teachers from different higher education institutions. These results helped identify several methodological and pedagogical challenges affecting the effective integration of 4C competencies into higher education classrooms.

At the same time, many respondents reported difficulties related to the implementation of critical thinking and creativity-oriented tasks. Several teachers stated that traditional teaching practices and limited

methodological preparation reduce opportunities for organizing innovative classroom activities. According to the survey findings, a considerable number of teachers expressed uncertainty about designing lessons that effectively integrate all components of 4C competencies simultaneously.

The comparative analysis of respondents from different higher education institutions also revealed certain differences in teaching practices. Teachers from foreign language-oriented institutions demonstrated relatively higher awareness of communicative and collaborative teaching methods compared to teachers from multidisciplinary universities. Nevertheless, respondents from all three institutions emphasized the necessity of improving professional preparation related to competency-based education.

Interview analysis provided additional qualitative insights into teachers' professional experiences. Many participants highlighted that large classroom sizes, limited instructional time, and insufficient methodological resources negatively influence the implementation of interactive and student-centered activities. Some respondents also noted that traditional assessment systems still focus primarily on theoretical knowledge rather than competency development.

One of the most significant findings of the research was that the majority of participants expressed a strong need for professional development programs focused on modern pedagogical technologies and innovative teaching methods. Teachers emphasized the importance of workshops, seminars, and practical training sessions aimed at improving their ability to integrate creativity, critical thinking, communication, and collaboration into English language instruction.

The research findings confirm that although English language teachers understand the theoretical importance of 4C competencies, practical classroom implementation remains limited in many cases. This situation indicates the necessity of strengthening methodological support systems and improving competency-based teacher training in higher education institutions.

Furthermore, the study demonstrates that competency-oriented education can significantly improve students' communicative abilities, independent thinking, collaborative learning skills, and creative problem-solving capacities when implemented effectively in English language classrooms.

Conclusion and Recommendations. The present study investigated the necessity of developing 4C competencies among English language teachers in higher education institutions. The findings of the research demonstrated that modern English language education increasingly requires teachers to integrate critical thinking, creativity, communication, and collaboration into classroom instruction in order to meet the demands of competency-based education.

The results of questionnaires, interviews, and survey analysis revealed that most teachers recognize the theoretical importance of 4C competencies and understand their role in improving students' communicative abilities, independent thinking, and collaborative learning skills. However, the research also showed that the practical implementation of competency-based teaching approaches remains insufficient in many classroom environments.

Several factors were identified as major challenges affecting the effective integration of 4C competencies. These include traditional teaching methods, insufficient methodological preparation, limited professional development opportunities, a lack of innovative educational resources, and assessment systems focused mainly on theoretical knowledge rather than competency development.

The study also revealed that English language teachers demonstrate stronger implementation of communication and collaboration activities compared to creativity and critical thinking tasks. This finding indicates the necessity of improving teachers' methodological competence related to innovative and learner-centered teaching strategies.

Based on the research findings, several recommendations can be proposed:

- organizing regular professional development programs focused on 4C competencies;
- conducting practical workshops and methodological seminars for English language teachers;
- integrating competency-based teaching approaches into higher education curricula;
- encouraging the use of interactive and collaborative classroom activities;
- improving assessment systems to evaluate students' competency development alongside theoretical knowledge.

Furthermore, higher education institutions should create supportive educational environments that encourage innovative pedagogy, digital learning technologies, and student-centered teaching approaches. Special attention should also be given to strengthening teachers' practical skills in organizing creative and critical-thinking-oriented classroom tasks.

In conclusion, the effective development of 4C competencies among English language teachers can significantly contribute to improving the quality of higher education and modernizing English language teaching practices in Uzbekistan. The study confirms that competency-based education plays an important role in preparing students for successful participation in modern academic, professional, and social environments.

References:

(1). Fullan M. The New Meaning of Educational Change. New York, Teachers College Press, 2007, 354 p.

(2). Qurbonova D.A., Djumabayeva J.S. From Knowledge to Competence: Rethinking Curriculum Design Through the 4C Framework in Uzbekistan. Mental Enlightenment Scientific-Methodological Journal, 2026, vol. 7, Issue 3, pp. 24–37.

(3). Trilling B., Fadel C. 21st Century Skills: Learning for Life in Our Times. San Francisco: Jossey-Bass, 2009, 256 p.

(4). Harmer J. The Practice of English Language Teaching. London, Pearson Longman, 2007, 448 p.

(5). Richards J.C. Communicative Language Teaching Today. Cambridge, Cambridge University Press, 2006, 104 p.

(6). Brown H.D. Principles of Language Learning and Teaching. New York, Pearson Education, 2007, 410 p.

(7). Partnership for 21st Century Learning. Framework for 21st Century Learning. Washington DC, 2019, 41 p

(8). Paul R., Elder L. Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life. Pearson Education, 2014, 348 p.

(9). Robinson K. Out of Our Minds: Learning to be Creative. Capstone Publishing, 2011, 320 p.

(10). Vygotsky L.S. Mind in Society: The Development of Higher Psychological Processes. Harvard University Press, 1978, 159 p.

(11). Qurbonova D.A., Djumabayeva J.S. The Role of 4C Skills in Enhancing the Professional Competence of English Language Teachers in Uzbekistan. Journal of Education and Learning, 2026, vol. 15, № 3, pp. 478–484.

(12). Creswell J.W. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. California: Sage Publications, 2014, 273 p.

(13). Cohen L., Manion L., Morrison K. Research Methods in Education. London, Routledge, 2018, 945 p.

(14). Kumar R. Research Methodology: A Step-by-Step Guide for Beginners. London, Sage Publications, 2011, 368 p.

(15). Richards J.C. Curriculum Development in Language Teaching. Cambridge, Cambridge University Press, 2001, 324 p.

(16). Brown H.D. Teaching by Principles: An Interactive Approach to Language Pedagogy. New York, Pearson Education, 2007, 410 p.

(17). Johnson D.W., Johnson R.T. Cooperation and Competition: Theory and Research. Minnesota: Interaction Book Company, 1989, 298 p.

(18). Richards J.C., Rodgers T.S. Approaches and Methods in Language Teaching. Cambridge: Cambridge University Press, 2014, 410 p.

(18). UNESCO. Education for Sustainable Development Goals: Learning Objectives. Paris, UNESCO Publishing, 2017, 63 p.