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PEDAGOGICAL VIEWS OF JADID ENLIGHTENERS ON EDUCATION AND SCHOOL MANAGEMENT

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ABSTRACT
The article provides a systematic analysis, based on primary sources, of the pedagogical views of the Jadid enlighteners who were active in Turkestan in the late nineteenth and early twentieth centuries regarding education and school management. The source base of the study consists of materials from the national press published between 1914 and 1929 ("Sadoyi Turkiston", "Oyina", "Mehnatkashlar tovushi", "Ishtirokiyun", "Turkiston", "Yosh Turkiston"), texts of Jadid drama, and studies by Z. Abdirashidov, R. Sharipov, A. Khalid, and T. Kocaoglu. Using content analysis and the historical-comparative method, six functional blocks of Jadid school management are identified: institutional establishment and regulatory governance, regulation of the educational process, staffing policy, financial management, assessment and public accountability, and social partnership. Mahmudkhoja Behbudi's concept of the "zamona maktabdori" (school administrator of the modern age) is interpreted as a historical and national source of the contemporary professional model of the education manager. The article also analyzes why the Jadids' attempts to introduce a unified curriculum did not succeed and draws methodological conclusions for present-day educational reforms.

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Keywords: *Jadidism, school management, new-method school, curriculum, timetable, public examination, charitable society, waqf, "zamona maktabdori", educational management, managerial competence.*

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Introduction

Pedagogical Views of Jadid Enlighteners on Education and School Management

Developing the managerial competence of the head of a general education institution is currently one of the most pressing issues in educational management. The Concept for the Development of the Public Education System of the Republic of Uzbekistan until 2030 includes among its priority tasks the professional training of school leaders and ensuring the transparency of educational institutions and their accountability to the public (President of the Republic of Uzbekistan, 2019). At the same time, contemporary educational management theory is often adopted from Western experience, while managerial thought within the national pedagogical heritage has not been sufficiently generalized at the theoretical level.

The Jadid movement has been extensively studied in Uzbek pedagogical scholarship. However, most existing research is devoted to the Jadids' literary and artistic heritage, their enlightenment ideas, and the methodology of the usul-i savtiya (phonetic method). The management dimension of the Jadid school in particular - the procedure for establishing an institution, its regulatory documents, financial sources, staffing policy, regulation of the educational process, and the practice of reporting on results - has rarely been treated as an independent subject of research. Yet primary sources show that the Jadids designed not

only a new method, but also a new type of educational institution: an organization with its own curriculum, timetable, staff, budget, and reporting system.

Accordingly, the purpose of this study is to systematize, on the basis of primary sources, the views and practices of the Jadid enlighteners concerning education and school management and to compare them with the categories of contemporary educational management. The article seeks answers to the following three research questions: 1) What was the principal object of Jadid criticism - teaching methodology or the school's organizational and management system? 2) What functional blocks constituted Jadid school management, and by what standards were they regulated? 3) Why did the Jadids' attempts to standardize the education system fail to achieve full results, and what lessons does this offer for educational management today?

Research Methods

The following methods were used in the study. First, source-critical and textual analysis was used to determine the author, publication venue, date, and degree of reliability of each document. Second, content analysis was conducted: across the entire corpus, key units expressing management semantics ("school", "director", "administration", "supervision", "curriculum", "timetable", "examination", "teacher", "salary/remuneration", "charity", "waqf", "charter", "class", "certificate") were ranked by frequency, and the sources with the highest frequencies were selected for in-depth analysis. Third, categorial-typological analysis was applied: the identified evidence was coded according to six functional blocks of contemporary educational management. Fourth, the historical-comparative method was used to compare the management of Jadid schools with that of traditional maktabs and madrasas and with the experience of Russian-native schools.

Literature Review

Analysis of the sources shows that disorder - that is, management deficiencies - lay at the center of the Jadid enlighteners' assessment of the traditional school. A. Khalid summarizes the essence of Jadid criticism as follows: "The school was disorganized, unhygienic, and run by uncouth teachers with no training in pedagogy; there was no system for inspecting schools; there were no organizations for establishing schools; and the philanthropy of the rich, insufficient as it was, took no organized form" (Khalid, 1998, pp. 36–37). The four deficiencies listed in this description - the system of supervision, the mechanism for establishing schools, staff qualifications, and financial organization - correspond directly to key categories of contemporary educational management.

The same situation is also documented in sources from Turkestan. Z. Abdirashidov points to the discrepancy between the legal status of the traditional school and the supervision that actually existed:

"Schools were officially considered religious and were under the supervision of Sharia authorities. In reality, however, no one supervised or inspected these schools" (Abdirashidov, 2008, p. 13).

The researcher specifically identifies three major institutional gaps in the old school: the absence of a curriculum, a lesson timetable, and a final credential: "Teachers had no curriculum or timetable of any kind for conducting lessons. After completing school, pupils received no certificate of any kind" (Abdirashidov, 2008, p. 16). The same source also notes that children were admitted to school at any time of the year and that pupils of different levels studied together in the same group (Abdirashidov, 2008, p. 16).

The economic roots of resistance to reform were also connected with the management system. The income of the traditional maktabdor (schoolmaster) was not a fixed salary but consisted of informal gifts from parents - the "panjshanbalik" brought every Thursday (Khalid, 1998, p. 50). The character of the domla in Hoji Mu'in's play defends this financial model and opposes the new order (Rizaev, 1997, pp. 250–251). Thus, introducing the new school also required changing the schoolmaster's source of income.

In madrasa management, the main problem was the lack of control over waqf funds. In Munozara, Abdurauf Fitrat exposes how waqf income passed into the control of mudarrises under the designation

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"haqqi ut-tadris", while hujras became private property and were sold for prices ranging from ten thousand to forty thousand tanga (Sharipov, 2002, p. 101). The distribution scheme for the annual waqf income of the Kukaldash Madrasa is also given: a certain portion of the funds went to the mudarris, while the remainder was divided among the imam, sufi, caretaker, water carrier, and hujra owners (Sharipov, 2002, p. 100). This criticism was later expressed directly in the language of management: "The absence of any supervision caused waqf property to be squandered" (Aliev, 1923).

For this reason, in Jadid discourse the concept of "reform" meant not repairing buildings or replacing individual lessons, but precisely restructuring the existing order. In Hoji Mu'in's play, this idea is stated openly in the dialogue between the characters: the purpose of reform is "to correct the order of teaching" (Rizaev, 1997, pp. 264–265). The first finding is therefore that the immediate object of Jadid criticism was not teaching methodology, but the school's organizational and management system; the usul-i savtiya was introduced as one of the means of restructuring that system.

Opening a Jadid school was a complex administrative process. Applications submitted by Munavvar qori and Abdulla Avloniy were rejected several times, and permission was obtained only with the consent of the governor-general (President of the Republic of Uzbekistan, 2019, p. 37). From 1912 onward, registration of new-method schools became compulsory (Abdirashidov, 2008, p. 189). A circular issued by Governor-General A. V. Samsonov on 25 January 1912 established the administrative procedure that remained in force in Turkestan until 1917: a school could be opened only with the permission of the inspectorate of public schools; the application had to include the curriculum for the course of study and a list of the textbooks to be used; the requirement that teachers and pupils belong to the same nationality was monitored; teachers had to be certified in accordance with the legislation of 1892; and the rules were binding on all existing schools (Abdirashidov, 2008, pp. 38–39, 206). In practice, the application also had to include information about where the teacher had been educated and where he lived, and the document was first submitted to the local pristav (Khalid, 1998, p. 206).

Officials of the Turkestan Educational District also developed a nine-clause set of rules that made opening a school more difficult: the room had to be suitable for teaching, sufficient light had to enter through the windows, permission had to be obtained from the inspector in a timely manner, and so forth (Akhrorova, 1996). Although these requirements served as instruments of restriction for the colonial administration, in substantive terms they represented an early form of licensing an educational institution.

The Jadids did not merely adapt passively to this procedure; they mastered it and taught it to the public. In Oyina, Mahmudkhoja Behbudi published a special article entitled "Mahtablarg'a ruxsat olmoq tariqasi" ("How to Obtain Permission for Schools"), in which he offered practical recommendations on the procedure for formalizing documents and on how to present the founder and teacher to the government (Behbudiy, 1914). Munavvar qori's article "Jamiyat qanday ochilur?" ("How to Establish a Society"), published in Sadoyi Turkiston, is essentially a step-by-step guide to creating an educational organization: first obtain a model charter, then write an application and submit it to the governor with the signatures of at least five people; those who sign are regarded as the founders of the society (Munavvarqori Abdurashidxon o‘g‘li, 1914).

The next stage after obtaining permission was to form the governing body:

After permission has been granted to the society, the founders first gather and elect from among themselves a chairman, a chief secretary, and a treasurer. The others are regarded as members of the board. From that day onward, the society's real work begins: raising funds, increasing membership... (Munavvarqori Abdurashidxon o‘g‘li, 1914).

This passage defines a clear organizational structure for the educational society: the positions of chair (sadrnishin), secretary (sarkotib), and treasurer, as well as the governing board. It demonstrates that the principle of distributing authority and financial responsibility had taken shape in Jadid management thought.

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The schools also had their own charters. It is recorded that the nine-clause charter of the "Muhammadiya" school, opened in 1912, was sent to Ismail Gasprali (Abdirashidov, 2008, p. 36); the "Tarbiyai atfol" society in Bukhara had a seventeen-article charter (Sharipov, 2002, p. 83). A supervisory position was also established: the crown prince of Khiva appointed a special nazir to supervise the new schools, and this function was performed by Ramazon Muhammad Karimzoda (Abdirashidov, 2008, p. 30). In announcements from Khiva, the school's "owner" (founder) and its "teacher" were formally distinguished (Abdirashidov, 2008, p. 30), indicating a separation between founding and executive functions.

In 1917–1918, a vertical management structure emerged. The newspaper Mehnatkashlar tovushi published the weekly lesson timetable sent by the central Commissariat of Education and emphasized that schools failing to follow it should be reported to the regional Commissariat of Education (Kattaqo‘rg‘on, 1918). Munavvar qori's article in Ishtirokiyun reveals the decision-making procedure among the education collegium, its Turkic (national) section, the city and uyezd education councils, and the teachers' union: the section submitted its proposal to the collegium, the collegium rejected it, and the section then referred the matter to lower-level bodies (Munavvar qori Abdurashidxonov, 1919).

The most significant difference between the Jadid school and the traditional school was the regulation of the educational process. The set of rules promoted through the newspaper Tarjimon closely resembles modern internal regulations:

...the number of pupils in one class should not exceed 30; they should be separated according to their level; pupils should be admitted twice a year, at the beginning and in the middle of the year; a new class should be opened for newly admitted pupils; there should be 4-5 hours of lessons per day and instruction six days a week; lessons should last 45 minutes, with a 10-minute break between them; a lesson timetable covering different subjects should be drawn up; pupils should not be made to memorize various texts, and so forth (Abdirashidov, 2008, p. 18).

These standards were also applied in practice in Turkestan. In his recollection of the school he opened in Tashkent in 1901, Munavvar qori describes the curriculum he prepared in precise numerical terms:

I prepared a 24-hour program consisting of 12 hours of Turki language, 5 hours of arithmetic, 2 hours of geography, and 5 hours of religious lessons per week... Twenty-two children from the mahalla enrolled... On 3 June 1901, we gathered 30 people from the mahalla and 22 children and formally opened the school. From that day onward, using that program, I divided the pupils into two classes and began teaching them by myself (Alijonov, 2024, p. 35).

This passage is valuable for the history of school management in several respects: it records simultaneously the weekly allocation of hours, the size of the student body, division into classes, the date of opening, and the participation of the mahalla. In addition, the author identifies the source of the curriculum: he modeled it on the curriculum of the Bakhchisaray school published in Tarjimon (Alijonov, 2024, p. 35). Thus, the press served as a channel for the transnational transfer of a management model.

In Hoji Mu'in's play, the structure of the new school is described as four grades and a four-year period of study; during this period, the pupil becomes literate and masters arithmetic, geography, Islamic history, and tajwid (Rizaev, 1997, p. 269). The work also reflects requirements for the school building: the building had to comply with rules of hygiene (hifzi sihhat), maps had to be hung on the walls, and the classroom had to contain desks, a table, a board, and chairs (Rizaev, 1997, p. 267). The inventory of the free school opened by Is'hoqxon Ibrat in 1907 likewise included desks, tables and chairs, new books, textbooks, notebooks, a blackboard, and a globe (Abdirashidov, 2008, p. 36).

From the perspective of management, the most complete description concerns the school of Abdulqodir Shakuriy. In an article published in Tarjimon in 1908, Ismail Gasprali gives the following assessment:

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The new-method school of Samarkand appears quite orderly in terms of its curriculum and organizational form. Head teacher Abdulqodir Effendi Shakuriy serves the discipline and progress of the school not as an ordinary employee, but with selfless devotion... The school has nearly one hundred pupils and three teachers (Abdirashidov, 2008, p. 51).

In this passage, four management categories - "curriculum", "organizational form", "discipline", and "head teacher" - occur in a single sentence; it also records the ratio of staff to student body (nearly one hundred pupils for three teachers). In June 1910, twelve identical applications submitted to open new-method schools in Tashkent were accompanied by a four-year curriculum in which each subject was linked to a specific textbook (Khalid, 1998, pp. 191–192). This indicates that the curriculum had been formalized as a document and that there was an attempt to standardize textbooks.

The issue of a unified curriculum was addressed systematically in 1917–1918. In March 1917, Munavvar qori formed a commission to develop a common curriculum for all Muslim schools in Turkestan; on 20 May of the same year, a congress of Turkestan teachers was held in Tashkent (Khalid, 1998, p. 277). The newspaper Mehnatkashlar tovushi summarized the congress resolutions as follows: instruction in every school should be conducted in the mother tongue; primary schools should provide seven years of education and be universal, compulsory, and free; foreign languages should not be compulsory in primary school and should not be taught at all during the first three years (Kattaqo‘rg‘on, 1918). The same source states that "the curricula of the schools of peoples living in one country" could not be different and that it was therefore decided "to make the curricula of all schools in Turkestan uniform" (Kattaqo‘rg‘on, 1918).

The staffing issue formed the core of the Jadid management program. Ismail Gasprali's program of educational reform included the following provisions: the school should be separated from the madrasa; separate teachers should be trained for primary classes; teachers should receive a monthly salary rather than "alms"; separate schools should also be opened for girls; and teaching should be conducted according to a defined curriculum and with the use of textbooks (Sharipov, 2002, p. 32). In essence, these five provisions constituted a project to place teachers' work on a professional and contractual basis and to establish the school as an independent institution.

Teacher-training practice took shape at the model school in Bakhchisaray. At the same time, this school also functioned as a "darulmuallimin" (teacher-training institution): mullahs who came from various cities studied the usul-i savtiya for one or two months and, after receiving a teaching certificate, returned to their own cities (Abdirashidov, 2008, p. 17). A distinctive "cascade" mechanism was introduced: each graduate was required to teach what he had learned to at least two other people and to reform two additional schools besides his own (Abdirashidov, 2008, p. 17).

At an early stage in Tashkent, an "itinerant teacher" model was tested: merchants funded a salary for one teacher, who taught in turn at four old schools in four quarters of the city; the experiment ended when the sponsors stopped paying the salary (Alijonov, 2024, p. 34). This example shows that staffing policy was directly dependent on financial sustainability.

The shortage of teachers was a problem acknowledged by the Jadids themselves. Behbudi wrote, "We have so few teachers in Turkestan..." and proposed using funds otherwise spent on weddings and ceremonies to send young people to the Caucasus, Crimea, Orenburg, and Kazan to learn teaching methods (Sharipov, 2002, pp. 76–77). Restrictions imposed on Tatar teachers from 1912 onward further aggravated the situation (Khalid, 1998, p. 191). In 1918, when the number of schools in Tashkent reached seventy-two, three- and six-month "teacher-training courses" were opened to meet demand (Sharipov, 2002, p. 44). By 1927, a complete organizational model of professional development had emerged: a central course for 30 participants was opened in Samarkand, lasting one and a half months; participants were admitted from each district according to quotas; a dormitory was prepared beside the course building; and participants were provided with teaching materials, stipends, and travel expenses (Rahmon o‘g‘li, 1927).

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The Jadid enlighteners clearly articulated, at the theoretical level, the school's need for a stable financial foundation. In his article "Jamiyat qanday ochilur?" ("How to Establish a Society"), Munavvar qori links this idea to the thesis of the school's institutional primacy: "The first gate to the garden of education and culture is the school" (Munavvarqori Abdurashidxon o‘g‘li, 1914). He then explains why merely opening a school is not sufficient:

It became understood that simply opening a school does not complete the work; rather, its progress and continuity require material and moral assistance and support, effort, and dedication. As the best measure for this, they established a 'society'; that is, within the framework of official law, they created a method of collecting donations from the people so that the deficiencies and needs of schools and institutions of higher learning already opened or yet to be opened could be remedied and met with greater ease (Munavvarqori Abdurashidxon o‘g‘li, 1914).

This passage lies at the core of the Jadid concept of financial management: the continuity of the school is linked to the existence of a permanent organization that finances it. In practice, a network of such organizations emerged: the society established by Munavvar qori in Tashkent in 1909 operated under the name "Turon" from 1913 onward; similar societies were established in Samarkand, Bukhara, Kokand, and Namangan, where they assumed responsibility for providing economic support to new-method schools and for creating textbooks and teaching manuals.

A particularly noteworthy feature was the public nature of financial reporting. Issue No. 21 of Oyina published an account of the proceeds from a performance of Padarkush staged by amateur performers from Samarkand in Kokand for the benefit of a new-method school: total revenue amounted to 1,331 rubles 50 kopecks, expenses to 727 rubles 10 kopecks (with a list of expenses attached), and net proceeds of 604 rubles 40 kopecks were transferred to the school (Sharipov, 2002, p. 28). This is a clearly documented example of funds raised for the benefit of an educational institution being reported publicly through the press.

The public examination stood at the center of the Jadid school's assessment system. At the first model school in Bakhchisaray, instruction began with twelve children and continued for forty-five days at four hours per day; the forty-sixth day was announced as examination day, and prominent townspeople were invited. Of the 200 people invited, 30 attended, while on the day of the examination itself the number of pupils reached forty (Abdirashidov, 2008, p. 15). This shows that the examination served at the same time as a means of building the school's reputation and expanding its scale.

The pedagogical and managerial meaning of the public examination is expressed directly in Hoji Mu'in's play. The teacher explains that the purpose of the examination is to make known to the public the pupils' work over the course of a year and his own "service in the cause of education and upbringing"; the invitation is sent in advance and specifies the exact time (Rizaev, 1997, pp. 267–268). More importantly, the school head asks an influential person invited to the examination to state the shortcomings openly and, saying "if we have shortcomings, let us strive to perfect them", invites external review on his own initiative (Rizaev, 1997, p. 268). In the language of contemporary educational management, this means opening the results of self-assessment to external evaluation - in other words, combining internal and external quality-assurance mechanisms.

Analysis and Results

The following table summarizes the study findings in comparison with the categories of contemporary educational management.

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Table 1

Correspondence of Jadid School Management Elements with Categories of Contemporary Educational Management

Management block	Jadid practice and source evidence	Contemporary equivalent
Institutional establishment and regulatory framework	Submission of an application, curriculum, and list of textbooks; inspectorate permission; school charter ("Muhammadiya": 9 clauses); charter of "Tarbiyai atfol" (17 articles)	Licensing, institutional charter, compliance with the state educational standard
Regulation of the educational process	No more than 30 pupils per class; 45-minute lessons; 10-minute breaks; 6 days per week; lesson timetable; 24-hour weekly program; 4 grades - 4 years	Curriculum and syllabus, lesson timetable, class-size standard, sanitary requirements
Staffing policy	Principle of a monthly salary for teachers; 1-2 months of training and a teaching certificate; 3- and 6-month courses; central quota-based course	Teacher certification, professional development system, remuneration
Financial management	Funds from the "jamiyati xayriya" and waqf; membership fees and subsidies; budget shares (20% / 30%) and supervision by the waqf department	Extra-budgetary funds, sponsorship board, financial control, and internal audit
Assessment and accountability	Public examination, invitation, participation of state and public representatives; financial reporting in the press on theater proceeds	Educational quality assessment, open-house day, public reporting
Social partnership	Mahalla consent and participation; network of sponsors; teachers' union; student self-government	School-family-mahalla cooperation, parents' council, student self-government body

The findings show that it is insufficient to interpret Jadidism solely within the framework of the usul-i savtiya methodology. Analysis of the sources confirms that the Jadid enlighteners implemented a comprehensive organizational project in education - that is, they built the school as an organization with a curriculum, timetable, staff, budget, system of supervision, and reporting mechanism. This dimension extends Jadidism from the subject matter of the history of pedagogy into that of the history of educational management as well.

The analysis showed that three types of management actors operated around the Jadid school: the state (the Tsarist inspectorate and later the Commissariat of Education), the community (educational and charitable societies, the mahalla, and sponsors), and the individual (the director, head teacher, and school founder/owner). The distinctive feature of the Jadid model was that its principal supporting actor was precisely the community. A. Khalid emphasizes that under the conditions of Turkestan, the establishment and support of the new-method school remained the responsibility of society rather than the state (Khalid, 1998, p. 186). This circumstance defined both the strength and the weakness of the movement: on the one hand, it made education a product of social initiative; on the other, it made it financially unstable.

The answer to the third research question takes shape at this point. The Jadids' attempts to introduce a unified curriculum did not achieve full results for four reasons. First, there was no institution capable of making the standard compulsory: A. Khalid shows that the experiment in teaching according to a common curriculum in Kokand failed because there were too few teachers capable of teaching all the subjects included in the curriculum and because no structure existed that could enforce a single standard (Khalid, 1998, p. 191). Second, there was no financial stability - when a sponsor stopped providing funds, the school itself ceased operating (Alijonov, 2024, p. 34). Third, the shortage of personnel was systemic, and the demand to establish a teacher-training institution (darulmuallimin) remained urgent even in 1914 (Asadullaxo‘jayev, 1914). Fourth, restrictions imposed by the colonial administration - the permission procedure, control over national composition, and the restrictions of 1912 - impeded the natural growth of the network (Abdirashidov, 2008, pp. 38–39; Khalid, 1998, p. 206).

This conclusion also has methodological significance for educational management today: a curriculum or state educational standard remains merely a document if it is not supported by an institutional mechanism for implementation, a stable source of funding, and trained teaching personnel. In other words, a standard is not an outcome but a function of the management system.

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A finding of particular theoretical value is Mahmudkhoja Behbudi's concept of the "zamona maktabdori". In his enlightenment program, Behbudi names the "zamona maktabdori", alongside the lawyer and the engineer, among the specialists who should be trained with the support of educational societies (Sharipov, 2002, p. 78). In essence, this amounts to recognizing as a distinct profession the specialist capable of managing a modern type of school. Thus, the figure of the education manager had already been theoretically defined in national pedagogical thought by the beginning of the twentieth century, and this may serve as a historical foundation for developing the professional standard of today's school leader.

Several direct correspondences were identified between the Jadid experience and contemporary management practice. The institution of the public examination corresponds to today's practices of external evaluation of educational quality, open-house days, and public reporting by schools; the "jamiyati xayriya" model corresponds to sponsorship boards and systems for attracting extra-budgetary funds; and the composition of the waqf department (two representatives from the executive body, one from the public, and one from the professional community) resonates with the representative principle of public oversight bodies. The requirement that a school leader know the language and the community's "ahvoli ruhiyasi" (social and psychological condition) (Alijonov, 2024) corresponds to the cultural and communicative competencies in contemporary models of leadership competence.

The limitations of the study should also be noted. First, the full texts of the charters of Jadid schools were not found in the corpus analyzed; they were mentioned only in passing (the nine-clause charter of the "Muhammadiya" school (Abdirashidov, 2008, p. 36), the seventeen-article charter of "Tarbiyai atfol" (Sharipov, 2002, p. 83), and the nine-clause rules of the Turkestan Educational District (Akhrorova, 1996)). Second, no reliable quantitative data were found on the exact monthly salary of a Jadid school teacher. Third, the organizational and management aspects of girls' schools are covered only very sparsely in the sources. These issues may form the subject of further research based on documents in the National Archive of Uzbekistan (including materials from Fonds 47) and complete runs of the newspapers and journals Tarjimon, Oyina, and Najot.

Conclusion

Based on the results of the study, the following conclusions were formulated.

First, the Jadid enlighteners' criticism of the traditional education system was, above all, a criticism of management: the sources identify the absence of a curriculum, lesson timetable, class division, final credential, supervision and inspection system, teacher qualifications, and financial organization as the main deficiencies. The usul-i savtiya was introduced not as an independent goal but as a means of reorganizing the school.

Second, Jadid school management appears as an integrated system consisting of six functional blocks: institutional establishment and regulatory governance; regulation of the educational process; staffing policy; financial management; assessment and public accountability; and social partnership. Specific standards for each block (30 pupils per class, a 45-minute lesson, a 24-hour weekly program, one to two months of training and a certificate, and budget shares of 20 and 30 percent) are documented in the sources.

Third, the principal supporting actor of the Jadid management model was not the state but the community - educational and charitable societies, the mahalla, and sponsors. This model made education a product of social initiative, but at the same time rendered it financially unstable.

Fourth, the failure of attempts to standardize the education system provides a methodological lesson: a regulatory document has no practical force unless it is supported by an institution capable of implementing it, a stable source of funding, and trained personnel.

Fifth, Behbudi's concept of the "zamona maktabdori" shows that the profession of education manager was theoretically recognized within the national pedagogical heritage. The public examination,

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the public nature of financial reporting, the organizational structure of the society, and the cultural and communicative requirements placed on leaders can be used as a national-historical foundation for developing the managerial competence of today's heads of general education institutions.

Thus, the study of the Jadid pedagogical and managerial heritage has not only historical-pedagogical but also practical managerial significance, as it helps strengthen the national foundation for training leaders of educational institutions.

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REFLECTIVE ABILITY AS AN ESSENTIAL COMPONENT OF PEDAGOGICAL ACTIVITY

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ABSTRACT
This article examines the role of reflective ability in the professional training of prospective teachers from a theoretical-analytical perspective. It distinguishes among reflection, pedagogical reflection, and reflective competence as conceptually related but functionally distinct constructs. Through a comparative analysis of recurring features in the scholarly literature, the authors propose a working framework of reflective ability comprising six interrelated components: cognitive, evaluative, personal-meaning, regulatory, communicative, and prognostic. The article further considers the use of reflective journals, video-based lesson analysis, case-based tasks, peer observation, portfolios, and action research within a cyclical sequence of evidence collection, analysis, alternative action, testing, and reassessment. The proposed framework is presented as a theoretical model that requires further empirical validation.

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Keywords: *prospective teacher; reflection; pedagogical reflection; reflective ability; reflective competence; self-awareness; professional development.*

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Introduction

Contemporary educational environments require teachers to possess professional preparation that extends beyond knowledge of subject content and the application of methodological techniques. Unexpected situations arise during lessons, learners' needs vary, and a chosen method does not always produce the intended outcome. Under such conditions, a teacher must be able to explain the rationale for a decision, monitor its consequences, and, when necessary, modify subsequent action. In our view, reflective ability constitutes the professional foundation that enables this process to be organized consciously and systematically.

The Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030 identifies the gradual transition from education oriented toward the transmission of theoretical knowledge to a system that develops practical skills, the qualitative renewal of educational content, and the training of competitive personnel as priority tasks (President of the Republic of Uzbekistan, 2019). This requirement implies that a prospective teacher should not only acquire practical experience but also be able to analyze that experience. Professional growth is secured not by the activity performed in itself, but by the reasoned conclusions drawn from it and the changes subsequently introduced into practice.

In pedagogical practice, reflection is sometimes limited to a general impression at the end of a lesson or a brief self-assessment such as "the lesson went well." Such an approach does not reveal what caused an error, which method proved effective, or what alternative course of action might have been

taken. Reflection in the scholarly sense requires interpreting observed evidence, distinguishing cause from effect, comparing alternative decisions, and determining subsequent action. From this perspective, the purpose of this article is to clarify the content and functions of reflective ability in pedagogical activity and to present, in an interconnected manner, methods that support its development in prospective teachers. The article explains the relationship among reflective ability, pedagogical reflection, and reflective competence and, on the basis of features identified in the literature, proposes six structural components of reflective ability as the authors' conceptual framework.

Literature Review

The pedagogical foundations of reflective thinking were articulated by Dewey (1933) through the unity of experience and its conscious reconsideration. Schön (1983) demonstrates that, in uncertain situations, professionals make decisions not solely by relying on ready-made rules but through analysis that emerges within the activity itself; he distinguishes between reflection during activity and reflection after activity. Stepanov and Semyonov (1985) classify reflection into intellectual, personal, communicative, and cooperative types, thereby substantiating that it cannot be reduced to mere self-observation. Taken together, these perspectives indicate that reflection is a complex phenomenon integrating thought, personal experience, and professional collaboration.

Developing Dewey’s ideas, Rodgers (2002) interprets reflection as a systematic, collaborative, and relationship-based process through which meaning is made of experience. Larrivee (2000) emphasizes that critical reflection enables teachers to reconsider implicit beliefs and habitual expectations embedded in their practice. Korthagen et al. (2006) propose cyclical reflective models linking theory and practice, while Brookfield (2017) argues for examining a teacher’s personal experience through the perspectives of learners, colleagues, and theoretical sources. In local research, increasing attention has also been paid to the reflective skills of prospective teachers (Guliyamov & Eshpo‘latova, 2025). Nevertheless, the composition of reflective ability, its manifestation in practice, and its assessment criteria still require articulation within a unified logical framework.

Research Methodology

This study employed a theoretical-analytical research design. Perspectives presented in philosophical, psychological, and pedagogical sources were compared on the basis of three questions: What is reflection directed toward? What function does it perform in a teacher’s activity? Through which indicators can its outcomes be observed? The units of analysis were the definition, object, function, type, developmental method, and assessment indicator associated with the concept. Recurring conceptual features identified in the sources were first grouped, after which their interrelationships were interpreted from the perspective of pedagogical activity (Bakholskaya et al., 2018; Brookfield, 2017; Dewey, 1933; Guliyamov & Eshpo‘latova, 2025; Korthagen et al., 2006; Kuzmina, 1980; Larrivee, 2000; Machost & Stains, 2023; Rodgers, 2002; Schön, 1983; Stepanov & Semyonov, 1985). On this basis, a working structure comprising cognitive, evaluative, personal-meaning, regulatory, communicative, and prognostic components was formulated. This structure is not an empirical model; rather, it is regarded as a theoretical proposition to be tested in subsequent applied research.

Analysis and Results

The Scientific Meaning of the Concept of Reflection

The term “reflection” derives from the Latin reflexio, meaning “turning back” or “returning to.” In the philosophical tradition, it denotes the subject’s turning toward their own thinking and ways of knowing; in psychological interpretation, it refers to awareness of one’s internal state, motives, and behavior. Dewey (1933) explains reflective thinking as the active, persistent, and careful consideration of the grounds supporting an existing belief or form of knowledge and of the conclusions to which it leads. This definition distinguishes reflection from merely recalling an event: in reflection, a person examines not only what they know, but also the basis on which a given knowledge claim or decision was reached.

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Schön (1983) distinguishes two interrelated forms of reflection in professional activity: reflection-in-action and reflection-on-action. In the first case, during a lesson the teacher observes students' reactions, task performance, or disruptions in communication and adjusts their actions within the situation itself. In the second case, after the lesson the teacher analyzes the outcome and its causes and draws a reasoned conclusion for the next session. These two forms complement one another: an immediate adjustment may remain an incidental decision if it is not examined through subsequent analysis, while delayed analysis may fail to contribute to professional development if it does not lead to practical change.

Although reflective ability, pedagogical reflection, and reflective competence are closely related in meaning, it is not appropriate to use them as identical concepts. Reflective ability denotes a person's capacity to analyze their own thoughts, feelings, actions, and the outcomes of those actions. Pedagogical reflection is the practical manifestation of this capacity when directed toward an educational situation. Reflective competence, in turn, is manifested through the integration of knowledge, skills, values, and experience and expresses readiness to analyze and improve a pedagogical situation. Thus, ability is a psychological capacity, pedagogical reflection is a mechanism of activity, and competence is their stabilized outcome in professional experience.

Structural Components of Reflective Ability

A comparison of the definitions and functions found in the reviewed sources showed that it is insufficient to explain reflective ability as a single skill. From the authors' perspective, its manifestation in pedagogical activity can be represented through the following interrelated components:

1) cognitive component – understanding the relationship among the pedagogical situation, the method applied, and the outcome achieved;

2) evaluative component – objectively assessing one's own activity on the basis of explicit criteria and evidence;

3) personal-meaning component – recognizing professional values, motives, emotional reactions, and one's personal position;

4) regulatory component – modifying one's mode of action and exercising self-regulation on the basis of an identified problem;

5) communicative component – understanding the perspectives of students and colleagues and accepting feedback;

6) prognostic component – anticipating possible consequences and designing subsequent pedagogical action.

Within the proposed structure, the components operate not separately but as a unified process. For example, a teacher may analyze a situation, but if they do not change their actions on the basis of the conclusion reached, reflection produces no practical outcome. Likewise, if evaluation is not grounded in explicit criteria, it remains at the level of subjective impression; if the perspective of a student or colleague is not considered, the situation is interpreted one-sidedly. Accordingly, the list of components is intended not merely to enumerate abilities, but to identify which link in the reflective process may be missing.

Types of Reflection and Their Pedagogical Functions

Stepanov and Semyonov (1985) distinguish cooperative, communicative, personal, and intellectual types of reflection according to the domain toward which reflection is directed. This classification is useful for analyzing pedagogical activity because it draws attention not only to the teacher's own experiences but also to modes of thinking, communication, and collaboration. The table below presents the authors' interpretation of how these types are related to pedagogical functions.

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Table 1.

Types of Reflection and Their Pedagogical Functions

Type of reflection	Core content	Function in pedagogical activity
Intellectual	Analysis of knowledge, modes of thinking, and problem-solving strategies.	Determining the alignment among lesson objectives, content, and method; reconsidering an ineffective approach.
Personal	Awareness of one's motives, emotional state, values, and self-image.	Recognizing one's professional position, regulating emotional reactions, and strengthening responsibility and the need for self-development.
Communicative	Understanding another person's perspective and how one is perceived by that person.	Adapting communication with students and enhancing empathy, feedback, and the effectiveness of pedagogical influence.
Cooperative	Analysis of roles, positions, and interaction in collective activity.	Coordinating collaboration with colleagues and organizing collective decision-making and mutual learning.

Source: Systematized by the authors on the basis of the classification by Stepanov and Semyonov (1985).

In practical situations, these types of reflection usually occur simultaneously. For example, when analyzing students' low level of participation in a lesson, a teacher intellectually evaluates the difficulty of the task and the extent to which the method corresponds to the lesson objective. At the same time, the teacher attends to their own communication style, attempts to understand how students perceived the situation, and exchanges views with a colleague. Such analysis makes it possible to view reflection not merely as internal observation, but as a means of connecting several layers of a pedagogical situation.

The Significance of Reflective Ability in Pedagogical Activity

The outcomes of pedagogical activity are not always immediately visible or unambiguous. The same method may produce different results in different groups, while a student's error may be associated not only with insufficient knowledge but also with the wording of a task, motivation, communication, or psychological state. Reflective ability enables a teacher to examine several possible explanations for a situation rather than hastily treating a surface indicator as the actual cause. In this respect, reflection does not complicate pedagogical decision-making; on the contrary, it brings such decisions closer to an evidence-based foundation.

The analysis indicates that reflection performs four interrelated functions in a teacher's professional development. The diagnostic function serves to identify the causes of success or difficulty, while the design function transforms the results of analysis into a plan for subsequent action. The regulatory function supports the adjustment of strategy during the lesson, whereas the developmental function converts individual experience into personal professional knowledge. Kuzmina (1980) emphasizes that the effectiveness of a pedagogical system should be evaluated through the interrelationships among its goals, content, means, and participants. Reflection enables the teacher to recognize these interrelationships in everyday practice.

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In contemporary interpretations, reflective practice is characterized by a teacher approaching their own experience with a specific question, collecting evidence, obtaining feedback, and developing a plan for change to be tested in the next cycle (Machost & Stains, 2023). It is therefore appropriate to understand reflection not as a one-time conclusion reached after a lesson, but as a recurring cycle of professional learning: observing the situation, collecting evidence, analyzing causes, selecting an alternative solution, testing it, and reassessing the outcome. Reflection becomes a force that changes practice only when each stage of the cycle provides a basis for the next.

Methods for Developing Reflective Ability in Prospective Teachers

Reflective ability cannot be developed through theoretical explanation alone. It requires regular tasks, evidence-based discussion, and a safe learning environment in which errors can be analyzed openly. Research devoted to the development of pedagogical reflection among students likewise demonstrates the importance of purposeful practice and feedback (Bakholskaya et al., 2018). In higher pedagogical education, the following methods can be used not as isolated activities but as stages of a unified developmental process:

Reflective journal – after a lesson or practicum, the student goes beyond simply recounting the event and records what occurred, which factors influenced it, what evidence supports the conclusion drawn, and what should be changed next time.

Video-based lesson analysis – enables specific episodes in a recording to be examined instead of relying on a general evaluation based on memory. Speech, questioning techniques, time allocation, student participation, and feedback are discussed on the basis of observable indicators.

Case studies and pedagogical situations – teach students not to search for a single "correct" answer, but to develop several solutions to a problem, compare their possible consequences, and justify the selected decision on the basis of criteria.

Peer observation and peer feedback – students observe one another's microteaching on the basis of criteria agreed in advance. Feedback is directed not at the person, but at the observed action, the conditions in which it occurred, and its outcome.

Reflective portfolio – brings together lesson plans, observation sheets, student work, the student teacher's self-assessment, and revised versions in one place. In this way, the focus is placed not on an isolated outcome but on the dynamics of development.

Action research – the student identifies a specific problem in practice, tests a small change, collects evidence concerning the outcome, and plans the next cycle on the basis of that evidence.

The value of the methods listed above lies not in their labels but in the questions on which the student works. For example, the question "Did you like the lesson?" leads only to the recording of a general impression. By contrast, questions such as "Which student behaviors showed that the selected method was effective?", "Which assumption influenced my decision?", or "How else might this situation be interpreted?" connect conclusions to evidence. It is important that reflection should not become a means of assigning blame or searching only for shortcomings. A reflective task contributes to professional development only when the student learns not to conceal an error, but to use it as information for subsequent action.

Criteria for Assessing Reflective Competence

It is difficult to assess the reflective development of a prospective teacher using only a general statement such as "is able to analyze their own activity." Assessment should examine whether the student describes the pedagogical situation using specific facts, distinguishes outcomes from causes, recognizes their own contribution and limitations, and takes the student's perspective into account. The ability to connect a theoretical concept with a practical episode, propose several solutions, formulate a verifiable next goal, and reassess the result of an introduced change may also serve as assessment criteria. Such criteria transform reflection from a personal impression into an observable professional action.

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On the basis of these criteria, descriptive, analytical, and critical-transformative levels can be distinguished. At the descriptive level, the student recounts what occurred but does not yet reveal the causes. At the analytical level, the student explains cause-and-effect relationships and supports conclusions with a theoretical concept or evidence. At the critical-transformative level, the student takes into account personal assumptions, situational conditions, and the perspectives of other participants and develops a specific plan for change. In our view, these levels are more effective when used to identify the student's next point of development rather than merely to assign a grade.

Discussion

The perspectives reviewed provide grounds for interpreting reflective ability not as an additional quality of pedagogical activity, but as an essential mechanism that supports its continuous improvement. It reduces the gap between theoretical knowledge and practical experience: the student does not merely memorize theory but uses it to explain a specific situation. Reflection also strengthens a prospective teacher's sense of responsibility for their decisions, because the student learns to understand the causes and consequences of a selected approach rather than simply reproducing external instructions. Communicative and cooperative reflection, in turn, create conditions for considering the perspectives of other participants and making decisions collaboratively.

However, not every form of self-analysis can be regarded as developmental reflection. Reflection without criteria may lead to subjective conclusions, while analysis focused exclusively on shortcomings may reduce self-confidence. Reflection acquires practical significance only when it is connected with evidence, theoretical concepts, constructive feedback, and a specific subsequent action. Therefore, in higher pedagogical education it is insufficient to teach reflection only as a separate topic; it should be embedded in methodology courses, pedagogical practice, and independent learning assignments. This conclusion also indicates the need to test the proposed six-component structure in practical situations and to refine the assessment criteria in subsequent research.

Conclusions and Recommendations

As a result of the theoretical analysis, reflective ability was interpreted as an integrative professional quality that enables a prospective teacher to become aware of their own thoughts, emotional state, pedagogical actions, and the consequences of those actions; to evaluate them on the basis of criteria; to take into account the perspectives of other participants; and to introduce purposeful changes into their activity. This ability is manifested in practice through pedagogical reflection and, when integrated with knowledge and experience, becomes a structural foundation of reflective competence.

To develop reflective ability in prospective teachers, reflective journals, video analysis, case studies, peer observation, portfolios, and action research should be systematically integrated with pedagogical practice. Each of these methods should lead to the collection of evidence, interpretation of the situation, selection of an alternative decision, and reassessment of the result. Under these conditions, reflection ceases to be a task performed merely for reporting purposes and instead develops the student's professional autonomy, responsibility, and need to improve their own practice.

Based on the results of the analysis and the identified issues, the following recommendations can be proposed:

1) in pedagogical education programs, reflective tasks should not be confined to a separate topic but should be incorporated into the assessment criteria of methodology courses and pedagogical practice;

2) reflective journals, video analysis, peer observation, and portfolios should be organized within a unified cycle consisting of evidence collection, analysis, selection of an alternative solution, testing, and reassessment;

3) an assessment rubric for students' reflective competence should be developed across descriptive, analytical, and critical-transformative levels, after which its practical usability and reliability should be tested under conditions of pedagogical practice.

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FROM POLICY TO COMPETENCE: BUILDING HEALTHY LIFESTYLE CULTURE INTO UZBEKISTAN'S PHYSICAL EDUCATION TEACHER EDUCATION

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ABSTRACT

Physical education (PE) teachers shape how young people learn to move, interpret health information, and sustain active lives, yet the preparation of PE teachers is seldom specified in health terms. This comparative narrative review asks how healthy lifestyle culture can be converted from a national policy aspiration into assessable professional competence within physical education teacher education (PETE) in Uzbekistan. Policy instruments, institutional documentation, and peer-reviewed literature were examined across five purposively selected systems—Uzbekistan, Finland, Japan, the United States, and Germany—chosen to maximize variation in the institutional mechanism through which health promotion is sustained. Sources were charted against six a priori dimensions and compared for convergence and divergence. Three transferable principles emerged: health promotion endures only when it is structurally embedded rather than project-funded; responsibility for young people's health is distributed across professional roles rather than assigned to the PE teacher alone; and teacher preparation must align simultaneously with the school as a future workplace and the university as a present health setting. Building on these principles, the review proposes a six-domain competence framework that pairs each domain with indicative learning outcomes, assessment evidence, and the institutional condition required to sustain it. Professional role modeling is defined by conduct rather than physique. The framework is evidence-informed rather than validated and is offered as a set of testable propositions for curriculum development and subsequent empirical evaluation.

ACCEPTED

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Keywords: *physical education teacher education, healthy lifestyle culture, health promotion, physical literacy, curriculum design, Uzbekistan.*

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Introduction

Health is more than the absence of disease; it is a condition of physical, mental, and social well-being (World Health Organization [WHO], 1948). Contemporary guidance extends that premise by treating movement, sedentary time, nutrition, recovery, and the environments that make them possible as mutually dependent rather than as discrete personal choices (WHO, 2018, 2020). Educational institutions matter within this account for a reason that is easy to overlook. They distribute not only knowledge but also time, space, equipment, supervision, and social permission to be active.

PE teachers stand at the point where those resources reach young people. Their decisions influence which pupils experience competence, which quietly withdraw, and which forms of movement come to feel available. A systematic review of public health–aligned recommendations for preparing PE teacher

candidates identified professional knowledge, personal and professional competence, advocacy, and skill in creating active school environments as the expectations that recur across the literature (Webster et al., 2015). Reviews of physical literacy impose a parallel demand: teachers are asked to cultivate motivation, confidence, movement competence, and knowledge that persist beyond schooling, which presupposes that teachers themselves hold these attributes (Yin et al., 2024). One expectation, however, warrants explicit correction. Interview evidence indicates that PE teachers frequently treat a lean, athletic body as a source of pedagogical authority, a belief that narrows both what they teach and how they teach it (Barker et al., 2023). A defensible account of professional modeling therefore rests on conduct—accurate information, inclusive practice, visible self-regulation—rather than on physique.

Uzbekistan enters this discussion with an unusually strong mandate. Presidential Decree No. PF-6099 established the widespread introduction of healthy lifestyles and the development of mass sport as national priorities spanning families, mahallas, educational institutions, and workplaces (President of the Republic of Uzbekistan, 2020). A mandate of this kind confers legitimacy, coordination, and resources. It does not state what a graduating PE teacher must know, do, and be able to demonstrate. Between national aspiration and classroom practice lies an unspecified curricular layer.

That gap is partly a problem of level. The frameworks most often invoked in this literature were designed for schools (Centers for Disease Control and Prevention [CDC], 2024; WHO & United Nations Educational, Scientific and Cultural Organization [UNESCO], 2021), whereas the reform in question must be enacted inside universities, which carry health-promotion obligations of their own (*Okanagan Charter*, 2015). PETE is unusual in belonging to both settings simultaneously: it is delivered within a university that is itself a health setting and prepares graduates for schools that are health settings of a different kind. This review takes that double membership as its organizing problem and asks (a) which dimensions of healthy lifestyle culture are defensible as professional competences for PE teachers, (b) which principles transfer across systems that sustain health promotion through different institutional mechanisms, and (c) how those principles can be expressed as learning outcomes and assessment evidence feasible within Uzbek PETE.

Conceptual Framework

Healthy lifestyle culture is used here as an operational construct: the integrated knowledge, values, self-regulatory capacities, habitual practices, and professional behaviors through which a person sustains and supports physical, mental, and social well-being. The noun culture carries analytic weight. A lifestyle is enacted by an individual, whereas a culture is held collectively and reproduced through routines, norms, and institutional arrangements. Applied to teacher education, the construct consequently has two referents at once: the candidate's own practice and the conditions the program itself maintains.

Three conditions distinguish reform from rhetoric. A mandate supplies authoritative endorsement. Specification states what will be taught, learned, and assessed. Capacity supplies the staff, time, placements, and resources without which specification remains decorative. Policy analysis often collapses the three, treating the presence of a mandate as evidence that practice has changed. Uzbekistan clearly satisfies the first condition; this review concerns the second and the third.

Cross-setting alignment supplies the second premise. Global standards for health-promoting schools describe curriculum, services, environment, and partnership as one system rather than as separable initiatives (WHO & UNESCO, 2021), and the *Okanagan Charter* (2015) makes the corresponding claim for higher education, calling on institutions to embed health across campus operations and academic mandates. International guidance on quality physical education connects the two levels by naming initial teacher education as a policy lever in its own right (UNESCO, 2015). The practical consequence is straightforward: a program that teaches health promotion while modeling institutional indifference to it transmits the contradiction as reliably as it transmits the content.

Method

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Design and Rationale

A comparative narrative review with policy analysis was selected because the guiding question is conceptual and prescriptive rather than one of measurable effect. A systematic review answers whether an intervention works; the present question is what should be specified before any intervention exists to test. Following guidance for transparent narrative synthesis, selection and analysis are reported explicitly so that inferences can be audited, without any claim that the source set is exhaustive.

Case Selection

Uzbekistan served as the focal case. Four comparators were selected purposively for maximum variation in the mechanism through which health promotion is institutionally sustained: a national student health service (Finland), statutory coordination of school health functions (Japan), a whole-school framework promoted by a federal public health agency (United States), and time-limited statutory project funding (Germany). Variation in mechanism, not similarity of outcome, was the selection criterion. Germany was retained specifically as a disconfirming case against the assumption that formal provision produces durable structures. All comparators are high-income systems, a constraint addressed in the limitations.

Sources and Search

Searches were conducted in August 2026 in PubMed, publisher platforms, and official institutional and intergovernmental websites. Terms combined physical education teacher education, health promotion, physical literacy, school health, and student well-being with the names of the selected countries. Official sources were used for policy and institutional description; peer-reviewed sources were used for claims about competence, physical literacy, and professional practice. Recent material was preferred, with foundational documents retained irrespective of date. Non-English sources were consulted in official English versions where these existed.

Analysis, Trustworthiness, and Ethics

Each case was read against six a priori dimensions derived from the conceptual framework: conceptualization of health, institutional mechanism, physical activity provision, mental and social well-being, health education and literacy, and implications for teacher preparation. Findings were charted into a comparative matrix, examined for convergence and divergence, and abstracted into transferable principles. A principle was retained only where it was supported in at least three cases or where a single case supplied a clear disconfirming instance. Because the review has a single author, findings were not independently coded; the matrix is therefore reported in full so that readers can trace each principle to its sources. The author is an Uzbek researcher in pedagogy, a position that aids interpretation of the focal case while creating a risk of favorable reading, mitigated by applying identical dimensions to every case. Only publicly available documents were used, and no human participants, personal data, or ethical approval were involved.

Comparative Findings

Table 1 summarizes the comparison. The narrative below reports the interpretive point for each case rather than restating the matrix.

Table 1

Cross-Case Comparison of Institutional Mechanisms for Health Promotion and Their Implications for Teacher Preparation

Case	Primary institutional mechanism	Dominant conceptualization of health	Principal implication for PETE
Uzbekistan	National decree mobilizing family, mahalla, school, and workplace	Civic and societal priority; mass participation in sport	Strong mandate awaiting curricular specification and assessment

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Case	Primary institutional mechanism	Dominant conceptualization of health	Principal implication for PETE
Finland	National student health service with early screening at entry	Well-being as a condition of study capacity	Position support early; build referral literacy into preparation
Japan	Statutory coordination of school health, diet education, and safety	Health as a shared, interdisciplinary school function	Prepare candidates to work as one professional among several
United States	Whole-school framework promoted by a federal public health agency	Health and learning as mutually reinforcing systems	Add collaboration, planning, and advocacy; include staff wellness
Germany	Statutory but time-limited project funding in defined settings	Health promotion as a setting-based, funded intervention	Judge progress by durable structures, not by events or projects

Note. PETE = physical education teacher education. Cases were selected for variation in institutional mechanism rather than similarity of outcome. Entries summarize the mechanism each system foregrounds; they are not claims about implementation quality.

Uzbekistan

The distinguishing feature of the focal case is legitimacy. PF-6099 positions healthy-lifestyle promotion as a shared task across education, family, mahalla, and sport rather than as the responsibility of a single ministry (President of the Republic of Uzbekistan, 2020). What remains open is curricular translation. Anatomy and physiology are well established in Uzbek PETE and supply a sound foundation, but foundational science becomes professional competence only when it is connected to teaching decisions about load, inclusion, recovery, and referral.

Finland

The Finnish Student Health Service provides general and mental health services to students and operates HealthStart as an early process for entrants (Finnish Student Health Service [FSHS], n.d.-a, n.d.-b). The transferable lesson is not the service model, which depends on national financing arrangements that are not readily exported, but its underlying premise: student well-being is treated as a condition of study capacity, and support is positioned at entry rather than at crisis.

Japan

Japanese school health is framed as a coordinated field in which health education, dietary education, school lunches, safety, and cooperation with families and communities are handled as related responsibilities (Ministry of Education, Culture, Sports, Science and Technology [MEXT], n.d.). For preparation, this implies teaching candidates to operate as one professional among several rather than as the sole custodian of pupil health.

United States

The Whole School, Whole Community, Whole Child framework links physical education and physical activity to nine further components, among them health education, nutrition services, counseling and psychological services, employee wellness, family engagement, and community involvement (CDC, 2024). Two implications follow. Candidates require competence in collaboration, planning, and advocacy; and staff wellness appears as a named component, which extends the health agenda to teachers as workers rather than only to pupils as beneficiaries.

Germany

The German Prevention Act obliges health insurers to fund time-limited projects in defined settings, on the expectation that structures will persist once funding ends. Writing as practitioners in German higher education, Dietz and Schäfer (2023) question that expectation, arguing that project cycles do not reliably

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convert into permanent institutional structures. Because their article is an expert opinion rather than an evaluation, the claim is indicative rather than conclusive. It nonetheless serves here as a caution against inferring durability from formal provision.

Cross-Case Synthesis

Three principles survived the retention rule. The first is *structural embedding over episodic activity*. Systems that treat health promotion as a standing feature of curriculum, services, and staffing describe it as ordinary institutional business, whereas the German case shows that funded projects may leave little behind once the cycle closes (CDC, 2024; Dietz & Schäfer, 2023; WHO & UNESCO, 2021). The second is *distributed responsibility*. Japanese and U.S. arrangements both allocate health functions across roles, which implies a competence that is as much ethical and communicative as technical: knowing the boundary of one's professional remit and the path across it. The third is *dual-setting alignment*. Finnish provision and the *Okanagan Charter* (2015) converge on the claim that the institution preparing a professional is itself a health setting, so preparation should be judged by what the program practices as well as by what it teaches.

No case should be transplanted. Financing, governance, workforce structures, and school organization differ substantially across the five systems. What transfers is the principle and its expression as competence.

A Competence Framework for Uzbek PETE

Table 2 sets out six proposed domains, each paired with an indicative learning outcome, a form of assessment evidence, and the institutional condition on which it depends. The third and fourth columns carry the argument. An outcome that cannot be evidenced is not an outcome, and a competence the institution cannot support is an aspiration rather than a specification.

Table 2

Proposed Healthy Lifestyle Culture Competence Framework for Physical Education Teacher Education in Uzbekistan

Domain	Indicative learning outcome	Assessment evidence	Required institutional condition
Applied functional science	Explains exercise response, load, fatigue, and recovery in terms of teaching decisions	Case analysis of a lesson plan adjusted for load and recovery	Anatomy and physiology taught with applied, pedagogically framed tasks
Physical and health literacy	Appraises health claims and designs inclusive activity from credible evidence	Critical appraisal task using a public health guideline	Library and database access; staff competence in evidence appraisal
Self-regulation and mental well-being	Applies sleep, stress, and recovery strategies and recognizes limits of competence	Reflective portfolio with documented self-management plan	Accessible student counseling and a published referral pathway
Inclusive health communication	Communicates guidance without stigma and separates education from clinical advice	Simulated consultation and referral scenario, rated by rubric	Trained assessors; rubric criteria agreed across departments
Professional modeling and advocacy	Demonstrates evidence-informed conduct and argues for active school environments	Observed teaching plus a written advocacy brief for a school	Assessment policy excluding candidates' physique or fitness scores
Supervised health-promotion practice	Plans, delivers, and evaluates an activity with a school, family, or mahalla	Supervised project report with mentor evaluation	Placement agreements, qualified mentors, and supervision workload

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Note. Domains are proposed rather than validated. The fourth column states the condition without which the corresponding outcome cannot be honestly assessed; competences whose conditions are unmet should be recorded as aspirations rather than reported as outcomes.

Curriculum Mapping Rather Than a New Course

Introducing a stand-alone module is the most visible response available to a program and among the least effective, because it isolates health from the subjects in which teaching decisions are actually formed. Mapping the six domains across anatomy, sport science, psychology, pedagogy, PE methodology, public health, and school practice distributes the content where it is used. First-year anatomy is a natural entry point, provided that structure is linked from the outset to movement, recovery, nutrition, stress, and safe instructional decisions. Assessment should move beyond recall toward performance and judgment: case analyses, observed teaching judged partly on inclusion, simulated referral scenarios, reflective portfolios, and supervised project reports.

Feasibility in the Uzbek Context

Uzbekistan holds a comparative advantage that is easy to undervalue. The mahalla is an existing, culturally legitimate site for supervised health-promotion practice, which means the country possesses placement infrastructure that many systems must construct. The constraints are equally concrete: credit-hour ceilings, uneven staff expertise in mental health content, and finite supervision capacity. A phased sequence is therefore realistic. Programs can first audit where the six domains are already covered, then attach assessment evidence to existing courses, and only then negotiate structural changes such as new placements or staffing. Throughout, modeling should be assessed as conduct; candidates' body composition and personal fitness scores should not be used as proxies for professional competence (Barker et al., 2023).

Discussion

The contribution of this review is a shift in the unit of specification. Healthy lifestyle culture is treated not as a moral aspiration addressed to individuals but as a set of competences that can be taught, evidenced, and audited, and that carry stated institutional obligations. Three implications follow.

First, the level argument has practical consequences. School-level frameworks are routinely imported into teacher-education debates without adjustment, with the effect that the university's own obligations disappear from view (*Okanagan Charter*, 2015). A candidate taught stress management inside a program with no accessible counseling provision learns something durable about institutional sincerity, and it is not the lesson intended.

Second, the review resists an inference common in policy-facing scholarship: that a mandate demonstrates practice. The German case indicates why the inference is unsafe even where statutory provision exists (Dietz & Schäfer, 2023). For Uzbekistan, this cautions against reading seminars, campaigns, or sport events as evidence of curricular change.

Third, the mahalla warrants careful treatment. It is a genuine asset, offering an applied setting with existing legitimacy and reach. Local legitimacy and scientific warrant nonetheless answer different questions. Community endorsement establishes acceptability and feasibility; it does not establish efficacy. A defensible program needs both and substitutes neither for the other.

Limitations

The review is targeted rather than systematic, so publication and language bias cannot be excluded and no claim of exhaustiveness is made. All comparators are high-income systems whose resourcing differs markedly from Uzbekistan's, which is why transfer is proposed at the level of principle rather than program design. Official documents describe intended systems and not implementation quality. One key source for the German case is an expert commentary rather than an evaluation. As a single-author review, the analysis was not independently coded. Finally, the framework rests on no primary data from Uzbek PETE programs; it is evidence-informed rather than validated.

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Conclusion

Developing healthy lifestyle culture among future PE teachers is best pursued as a competence agenda rather than an exhortation. Uzbekistan already holds the mandate; what remains is specification and capacity. The framework proposed here states six domains, the evidence that would demonstrate each, and the institutional conditions each requires, and it defines professional modeling by conduct rather than appearance. Its claims are testable. A Delphi study with Uzbek PETE faculty and school mentors could validate and weight the domains; a curriculum audit could establish current coverage; and a pilot with pre- and post-assessment against a comparison cohort could test whether the framework changes what graduates can actually do. Until such work is completed, the framework should be read as a proposal for curriculum development and not as a demonstrated improvement.

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ENHANCING GEOGRAPHY EDUCATION THROUGH PROBLEM-BASED LEARNING: A QUASI-EXPERIMENTAL AND BIBLIOMETRIC STUDY OF PEDAGOGICAL EFFECTIVENESS

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ABSTRACT

This study evaluates the pedagogical effectiveness of Problem-Based Learning (PBL) in geography education through a design combining a quasi-experimental school intervention with bibliometric analysis. The empirical study involved 371 students from six general education schools in the Jizzakh, Samarkand, and Tashkent regions of Uzbekistan and was conducted in diagnostic, formative, and summative stages. Students in the experimental group received geography instruction based on problem situations, case studies, project work, practical tasks, and interactive learning, while the control group received traditional instruction. Student outcomes were assessed using surveys, diagnostic tests, and academic assessments. The experimental group showed a clear shift toward higher achievement levels: the proportion of students at the high level increased from 17% to 28%, the medium level from 30% to 42%, and the low level decreased from 53% to 30%. The study reports a 14.7% performance advantage for the experimental group over the control group. A VOSviewer co-occurrence analysis based on Lens.org records was also used to situate the study within international research trends. Overall, the findings support PBL as a promising approach for strengthening geographical knowledge, practical skills, analytical reasoning, and independent learning.

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Keywords: *Problem-Based Learning; geography education; quasi-experimental study; pedagogical effectiveness; independent thinking; bibliometric analysis; VOSviewer; learning outcomes.*

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Introduction

Contemporary education is increasingly expected to develop more than the reproduction of subject knowledge. Students also need opportunities to analyze information, formulate questions, make evidence-based decisions, and apply knowledge to situations that resemble problems outside the classroom. These expectations are particularly relevant in geography, where learners must connect physical, environmental, social, and economic processes across different spatial scales. For this reason, instructional approaches that require active inquiry and problem solving have become important in efforts to improve the quality of geography education. In pedagogical research, the effectiveness of such innovations should be examined through systematic evidence rather than assumed from classroom novelty alone (Rudenko, 2024; Shermukhamedova, 2020).

Problem-Based Learning (PBL) offers a suitable framework for this purpose because learning begins with a meaningful problem that requires students to identify what they know, determine what additional information is needed, examine possible explanations, and construct a reasoned solution. In geography lessons, this structure can be used for environmental problems, regional development questions, resource use, population processes, or other issues that require students to integrate concepts and evaluate alternatives. Previous work in geography education has emphasized the value of interactive instruction, problem-centered learning, and activities that strengthen modern skills such as critical thinking and independent learning (Dustiyeva et al., 2024; Jurakhujaev, 2023).

The present study combines two complementary forms of evidence. First, a quasi-experimental school study compares learning outcomes under PBL-oriented and traditional instruction. Quasi-experimental designs are useful when educational interventions are implemented in existing schools and classes where full random assignment may not be feasible (Campbell & Stanley, 1963; Maciejewski, 2020). Second, a bibliometric keyword co-occurrence analysis is used to position the local study within broader research trends. Together, these components allow the paper to examine classroom outcomes while also showing how PBL in geography relates to themes visible in the wider scholarly literature.

The practical purpose is not to present PBL as a universal replacement for all forms of instruction, but to evaluate whether a structured PBL approach can strengthen learning in ordinary school settings. The study therefore focuses on changes in achievement levels, the contrast between experimental and control groups, and the pedagogical meaning of those changes. It also identifies reporting limitations that should be addressed in future replications so that the effectiveness of the approach can be estimated more precisely.

LITERATURE REVIEW

PBL is closely associated with learner-centered instruction because it shifts part of the intellectual responsibility for learning from the teacher to the student. Rather than receiving a completed explanation and then practicing it, students encounter a problem, examine evidence, discuss alternatives, and refine their understanding through guided inquiry. In geography education, this process is especially useful because many geographical questions do not have a single isolated answer; they require interpretation of relationships among place, environment, population, economy, and human decision making. Jurakhujaev (2025a) describes a methodological model for improving problem-based teaching in geography and emphasizes competency-based, integrative, reflective, and activity-oriented principles. These principles correspond to the present study's emphasis on analysis, independent inquiry, and practical application.

PBL also works naturally with other active-learning strategies. Interactive methods can increase student participation and create opportunities for discussion, explanation, and collaborative reasoning (Dustiyeva et al., 2024). Case studies place learners in a concrete situation that must be interpreted and resolved, while project work extends inquiry over a sequence of tasks that can culminate in a product, presentation, or proposed solution. The geography-focused case-study and project-method publications used in the present study provide a methodological basis for including these forms of activity in the experimental lessons (Jurakhujaev, 2024, 2025b). Interdisciplinary integration can further strengthen geography learning because geographical problems frequently connect natural science, economics, history, civics, and environmental studies (Khamroeva & Jurakhujaev, 2023).

The literature used in the manuscript also points to the importance of adapting instruction to learners and classroom conditions. Ibragimov (2020) discusses the design of individualized teacher training, while Dustiyeva and Jurakhujaev (2024) examine aspects of the Finnish education system that emphasize learner-centered organization and practical learning. These sources do not by themselves establish the effectiveness of the intervention reported here, but they support the broader pedagogical rationale for combining structured guidance with active student participation.

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Methodologically, educational interventions require careful design, measurement, and analysis. Lodico et al. (2010) emphasize alignment among research questions, design, data collection, and interpretation, while Ott and Longnecker (2010) provide a general foundation for descriptive and inferential analysis. The study also uses bibliometric mapping to visualize conceptual relationships in the literature. VOSviewer is specifically designed to construct and display bibliometric networks, including keyword co-occurrence maps (van Eck & Waltman, 2010). In Figure 1, the visible network places problem-based learning in relation to themes such as geography education, active learning, project-based learning, and learning outcomes. This map provides contextual evidence of thematic connections; it should not be interpreted as causal evidence of instructional effectiveness.

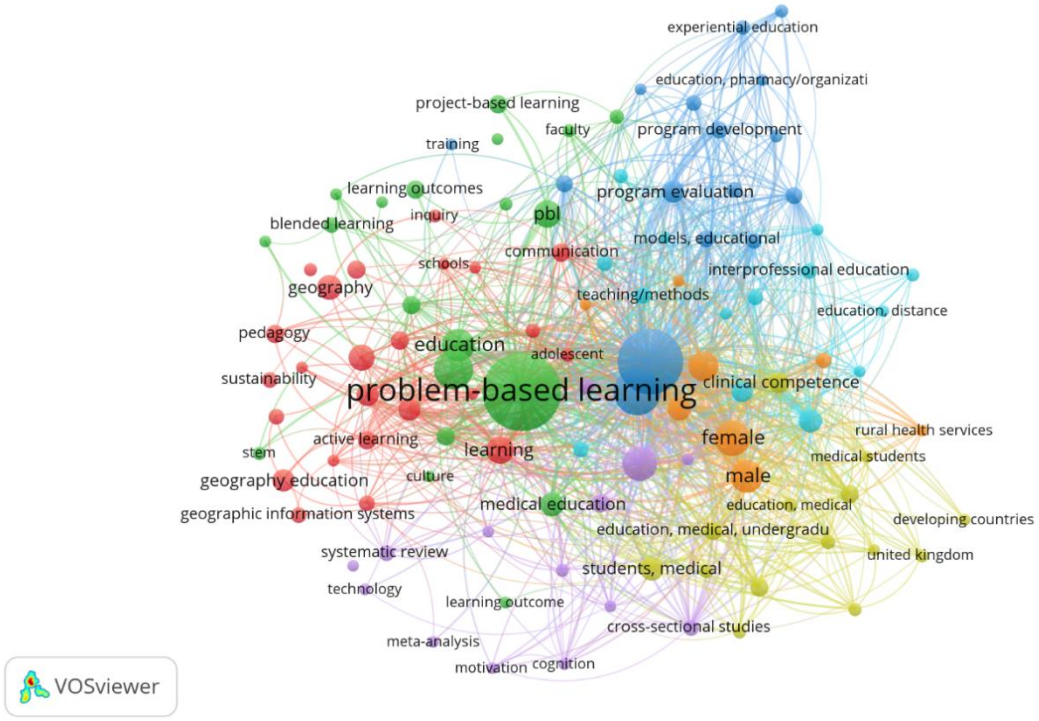


Figure 1. Keyword co-occurrence network related to Problem-Based Learning and geography education (generated with VOSviewer).

RESEARCH METHOD

The empirical component of the study used a quasi-experimental design. A total of 371 students from six general education schools in Uzbekistan participated in the reported experimental work. The schools represented three geographical areas. In Jizzakh Region, the study included General Education School No. 27 in Jizzakh City and General Education School No. 32 in Sharof Rashidov District. In Samarkand Region, General Education School No. 80 in Samarkand City and General Education School No. 7 in Oqdaryo District were included. The Tashkent-area sites were General Education School No. 278 in Olmazor District of Tashkent City and General Education School No. 1 in Chirchik City. Geography teachers at the selected schools were involved in implementation, although the source manuscript does not report a separate teacher sample size.

The experimental work was organized in three stages: diagnostic, formative, and summative. During the diagnostic stage, surveys and baseline assessments were used to examine the existing use of PBL in geography lessons and to identify initial attitudes and achievement levels. This stage also provided information for organizing the subsequent intervention. The use of a staged design is consistent with the general logic of educational experimentation in which baseline information is established before an instructional change is introduced and outcomes are then compared at the end of the intervention (Lodico et al., 2010; Rudenko, 2024).

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During the formative stage, students were organized into experimental and control groups. The experimental group received geography instruction based on PBL, whereas the control group received traditional instruction. PBL lessons included analysis of problem situations, independent inquiry, case-study tasks, project work, practical exercises, interactive activities, and opportunities for students to formulate conclusions from evidence. The intervention also used specially developed problem tasks, interactive lesson plans, multimedia resources, and instructional materials intended to support analytical thinking. The selection of these activities was informed by research on interactive methods, case studies, project work, interdisciplinary integration, and problem-based methodology in geography education (Dustiyeva et al., 2024; Jurakhujaev, 2024, 2025a, 2025b; Khamroeva & Jurakhujaev, 2023).

Student outcomes were assessed through surveys, diagnostic tests, and academic assessments. The final stage compared achievement distributions in the experimental and control groups using predefined high, medium, and low performance levels. The source manuscript also reports an inferential comparison summarized as a 14.7% performance advantage for the experimental group. General statistical references used in the study support the need to distinguish descriptive change from inferential evidence and to report statistical procedures clearly (Ott & Longnecker, 2010; Rudenko, 2024). However, the available manuscript does not specify the exact group sizes, duration of the intervention, scoring scale, test statistic, degrees of freedom, p value, or effect-size calculation. Consequently, the present paper reports the available numerical outcomes but does not reconstruct statistics that are not documented in the source material.

The second component was a bibliometric keyword co-occurrence analysis. Records were retrieved from Lens.org and visualized with VOSviewer. Co-occurrence mapping is appropriate for identifying how frequently keywords appear together and for showing clusters of related research concepts (van Eck & Waltman, 2010). The source manuscript provides the resulting network visualization but does not document the exact search string, search date, number of records, threshold settings, or counting method. The bibliometric component is therefore used as a contextual mapping exercise rather than as a systematic review or meta-analysis.

RESULTS

The achievement distributions shown in Figure 2 indicate a substantial shift in the experimental group between the beginning and end of the intervention. At baseline, 17% of students in the experimental group were classified at the high level, 30% at the medium level, and 53% at the low level. At the end of the experiment, the corresponding proportions were 28%, 42%, and 30%. Thus, the combined proportion of students at the high and medium levels increased from 47% to 70%, a gain of 23 percentage points, while the proportion at the low level decreased by the same amount.

The control group changed more modestly. At the beginning of the experiment, 18% of students were at the high level, 30% at the medium level, and 52% at the low level. By the end, these values were 19%, 33%, and 48%, respectively. The combined high-and-medium proportion therefore increased from 48% to 52%, while the low level decreased by 4 percentage points. Descriptively, the improvement in the experimental group was considerably larger than the change observed in the control group.

The study additionally reports that the experimental group's performance was 14.7% higher than that of the control group according to the authors' statistical comparison. Because the underlying inferential statistics are not included in the source manuscript, the 14.7% value is treated here as a reported study result rather than as an independently reproducible effect estimate.

The bibliometric map in Figure 1 complements these classroom findings by showing that PBL is connected in the research literature with active learning, project-based learning, learning outcomes, and related educational concepts. The dense network around the central PBL term indicates that the approach is discussed alongside multiple dimensions of teaching and learning rather than as an isolated technique. This pattern supports the decision to examine PBL in geography as part of a broader movement toward

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active and inquiry-oriented instruction, while the school experiment remains the primary source of evidence about local pedagogical effectiveness.

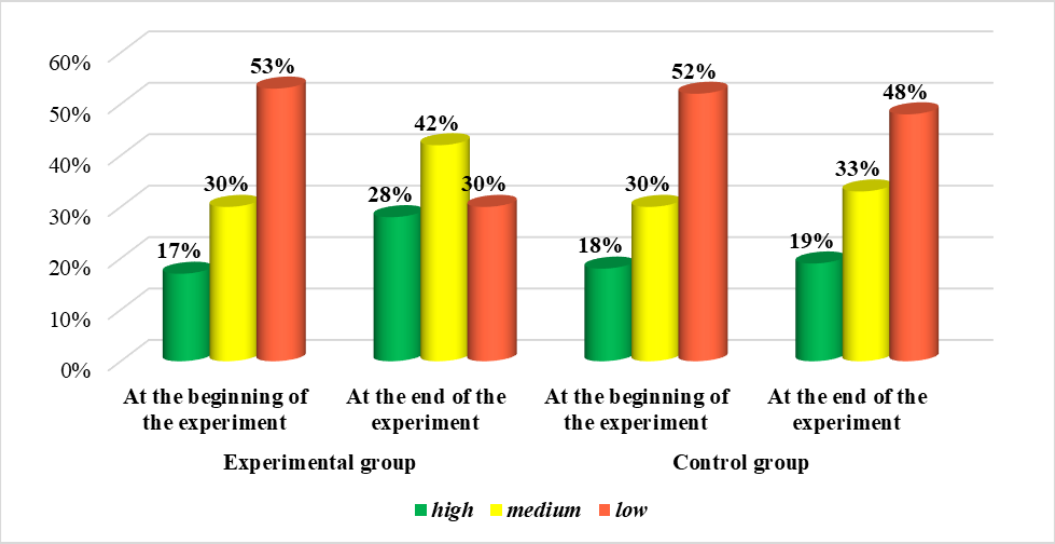


Figure 2. Comparison of achievement levels in the experimental and control groups.

DISCUSSION

The results are consistent with the pedagogical logic of PBL. Students in the experimental group were repeatedly asked to engage with problems, examine information, discuss possible solutions, and produce conclusions rather than relying only on the reception and reproduction of prepared content. Such activities can create more opportunities for higher-order thinking and for the practical application of geographical knowledge. The stronger shift from low achievement toward medium and high achievement in the experimental group therefore provides descriptive evidence that the PBL-oriented lessons were associated with improved learning outcomes under the conditions of this study.

Several elements of the intervention may have contributed to this pattern. Interactive methods can increase participation and make students' reasoning visible during instruction (Dustiyeva et al., 2024). Case-study tasks can connect concepts to realistic situations, and project activities can require learners to organize information across a longer sequence of inquiry (Jurakhujaev, 2024, 2025b). Interdisciplinary activities are also relevant because geographical problems often require the integration of environmental, social, and economic knowledge (Khamroeva & Jurakhujaev, 2023). In addition, problem-based methodology is intended to strengthen students' ability to identify a problem, search for relevant resources, evaluate evidence, and reach a reasoned conclusion (Jurakhujaev, 2023, 2025a). These mechanisms help explain why PBL may be particularly suitable for geography.

The findings also have practical implications for teachers. PBL should not be understood as simply giving students difficult questions and leaving them to work without support. Effective implementation requires purposeful problem selection, clear learning goals, appropriate resources, opportunities for collaboration, and assessment aligned with the intended skills. Individualized support may also be necessary because students differ in prior knowledge and readiness for independent learning (Ibragimov, 2020). The discussion of international educational practices by Dustiyeva and Jurakhujaev (2024) similarly suggests that learner-centered methods are most useful when they are adapted to the local curriculum and classroom context rather than copied mechanically.

At the same time, the study has limitations that should moderate interpretation. A quasi-experimental design can provide useful evidence in real educational settings, but causal conclusions are stronger when group formation, baseline equivalence, intervention fidelity, and potential confounding variables are reported in detail (Campbell & Stanley, 1963; Maciejewski, 2020). The available manuscript does not provide the experimental and control group sizes, the duration of instruction, reliability

information for the assessment instruments, or the full inferential output. Future reporting should include these details together with the exact statistical test, test statistic, degrees of freedom, p value, confidence interval where appropriate, and an effect-size measure. The bibliometric analysis also requires fuller documentation of the Lens.org search strategy and VOSviewer settings for reproducibility. These limitations do not negate the observed descriptive differences, but they define the level of confidence with which the magnitude of the effect can be generalized.

CONCLUSION

This study provides evidence that Problem-Based Learning can be a productive approach to geography instruction when it is organized through structured problem situations, case studies, projects, practical tasks, and interactive learning. Across 371 participants in six schools, the experimental group showed a markedly larger movement from low achievement toward medium and high achievement than the control group. The authors also report a 14.7% performance advantage for the experimental group, although fuller statistical reporting is required to evaluate that estimate independently.

The study's bibliometric component places the intervention within a broader research landscape in which PBL is connected with active learning, project-based learning, and learning outcomes. Taken together, the classroom and bibliometric evidence support continued development of PBL in geography education. Future research should report group characteristics, intervention duration, instrument reliability, complete inferential statistics, and reproducible bibliometric search procedures. With these improvements, subsequent studies will be better positioned to estimate effect magnitude, compare implementation across regions, and identify which PBL components contribute most strongly to students' geographical understanding, analytical reasoning, practical competence, and independent learning.

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PREPARING PRE-SERVICE PRIMARY TEACHERS TO FOSTER LOGICAL REASONING IN UZBEKISTAN'S TARBIYA CLASSES: A QUASI-EXPERIMENTAL PILOT STUDY

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ABSTRACT

This study examines a pedagogical model for preparing pre-service primary teachers to design reasoning-rich lessons in Uzbekistan's integrated Tarbiya ("Upbringing") subject. A two-group pretest-posttest quasi-experimental pilot involved 60 third-year Primary Education students at Andijan State Pedagogical Institute. Thirty participants followed the conventional Tarbiya methodology syllabus, whereas 30 studied through a modular approach centred on moral-logical dilemmas, Socratic and dialogic questioning, graphic organisers, cause-and-effect reasoning, evidence-based justification, and structured reflection. Methodological preparation was represented by a study-specific 100-point composite score covering lesson-plan construction, pedagogical-logical thinking, and practical teaching proficiency. The experimental-group mean increased from 62.1 to 85.4 points, an absolute gain of 23.3 points and a 37.5% increase relative to baseline. The control-group mean increased from 61.5 to 67.8 points, a gain of 6.3 points and a 10.2% relative increase. The between-group difference in gains was 17.0 points. Available study documentation did not include participant-level scores or variance statistics, so inferential statistics, confidence intervals, and standardised effect sizes are not reported. The findings are interpreted descriptively and support further evaluation of reasoning-oriented Tarbiya teacher preparation. Pupil logical-reasoning outcomes were not directly measured.

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Keywords: *Tarbiya, logical reasoning, critical thinking, pre-service teachers, primary education, dialogic teaching, teacher education.*

CC BY

Introduction

Education increasingly requires learners to analyse information, justify judgements, evaluate alternatives, and make responsible decisions in unfamiliar or complex situations. International competency frameworks similarly emphasise agency, reflection, reasoning, and responsible action (OECD, 2019). These aims draw on higher-order processes such as analysis, evaluation, inference, explanation, and metacognition (Anderson & Krathwohl, 2001; Facione, 1990; Kuhn, 1999). Such processes are not confined to mathematics or the natural sciences. Civic, social, language, and moral-educational contexts can also require pupils to identify causes and consequences, compare alternatives, evaluate evidence, justify claims, and reflect on their reasoning.

This perspective is particularly relevant to Uzbekistan's Tarbiya subject. Resolution No. 422 of 6 July 2020 established Tarbiya as an integrated subject in general secondary education, bringing moral, civic, and value-oriented areas into a common curriculum (Cabinet of Ministers of the Republic of

Uzbekistan, 2020). Although Tarbiya is concerned with values and behaviour, its themes also involve interpretation, judgement, and responsible decision making. Honesty, responsibility, environmental care, citizenship, cooperation, safety, and digital conduct can be approached through situations in which pupils identify relevant information, consider consequences, compare possible actions, and justify decisions. This approach preserves the formative purpose of the subject while increasing its cognitive demand.

A persistent pedagogical risk in value-oriented subjects is an emphasis on teacher explanation, textbook reproduction, and recall questions. Pupils may learn that pollution is harmful or honesty is desirable without having to explain why, consider exceptions, evaluate competing obligations, or examine consequences. Remembering a proposition and reasoning about it are different cognitive achievements. The revised taxonomy of educational objectives distinguishes remembering and understanding from analysing, evaluating, and creating (Anderson & Krathwohl, 2001). Reasoning-oriented Tarbiya lessons can therefore extend beyond recognition of socially valued norms by giving pupils structured opportunities to explain, compare, infer, justify, and reflect.

Research on critical-thinking instruction supports explicit, contextualised teaching. Abrami et al. (2015) found that critical-thinking performance can improve when instruction draws attention to thinking processes and provides opportunities for dialogue and authentic application. Teacher education adds a further requirement: pre-service teachers need pedagogical knowledge for formulating questions, designing tasks, anticipating pupil responses, selecting scaffolds, and managing interactions that make reasoning observable (Bubikova-Moan et al., 2026; Huang & Sang, 2023). Research on classroom dialogue likewise shows that structured talk can function as a cognitive tool through which pupils explain, challenge, refine, and coordinate ideas (Howe & Abedin, 2013; Mercer et al., 2004). Meta-analytic evidence also suggests benefits of dialogic teaching-and-learning programmes for teacher professional development, classroom interaction, and child outcomes in pre-primary and primary settings (Xie & Lin, 2025).

The study focuses on the methodological preparation of pre-service primary teachers and addresses two research questions: (a) Which pedagogical components characterise a Tarbiya methodology intended to foster pupils' logical reasoning? and (b) What descriptive pretest-posttest changes in methodological preparation were observed in the experimental and control groups? The contribution is twofold. It specifies a practical teacher-development model for reasoning-rich Tarbiya lessons and reports teacher-level outcomes within the limits of the available evidence.

Conceptual and Pedagogical Framework

Logical reasoning is used here as a practical pedagogical construct that includes analysis, comparison, classification, cause-and-effect reasoning, inference, justification, generalisation, and reflective evaluation. It overlaps with established conceptions of critical thinking, although critical thinking also encompasses broader dispositions, epistemic standards, and domain knowledge (Facione, 1990; Kuhn, 1999). In primary classrooms, these processes can be made visible through manageable tasks: identifying a cause, comparing two actions, classifying examples according to a rule, constructing an if-then relationship, selecting evidence, or explaining why one alternative is preferable. This emphasis is consistent with sociocultural accounts in which language, guided participation, and social interaction scaffold increasingly independent thinking (Vygotsky, 1978).

Moral-logical dilemmas form one component of the model. They present situations in which pupils identify relevant facts, recognise competing considerations, anticipate consequences, and justify a decision. The educational value of a dilemma lies in the reasoning it elicits, not simply in controversy. For example, the question of whether a pupil should reveal a friend's secret when keeping it may harm another person can be explored by asking who is affected, which information matters, what values are in tension, and what reasons support each option. This use of structured moral problems is consistent with moral-discussion interventions (Blatt & Kohlberg, 1975) and with contemporary Philosophy for/with Children research linking guided inquiry with reasoning and critical-thinking development (Kilby, 2025; Wei & Chen, 2025).

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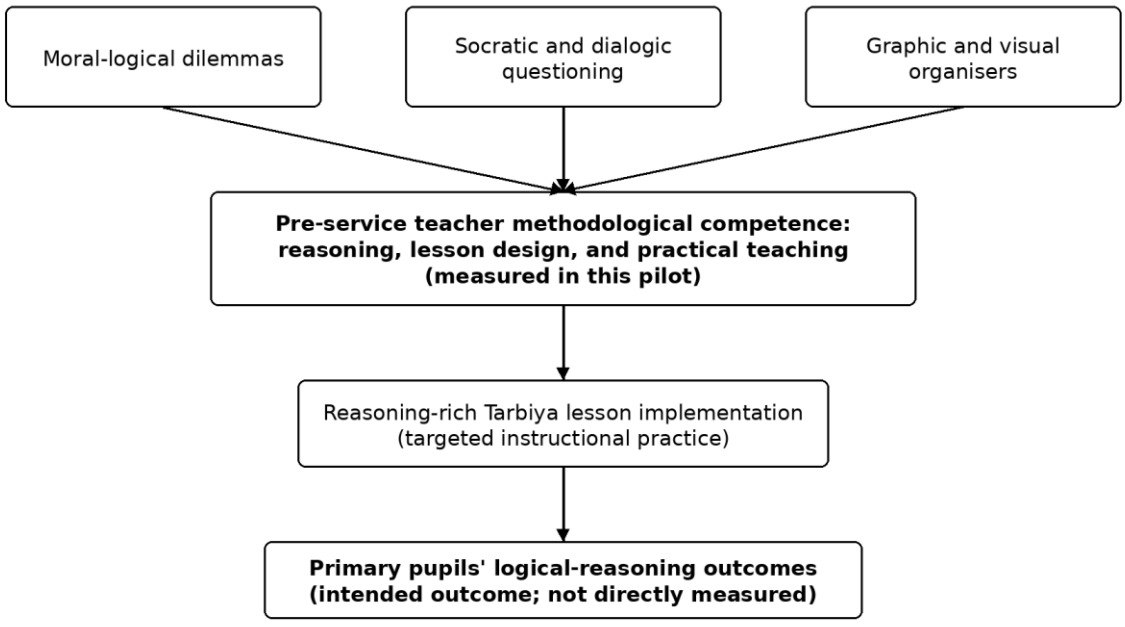
Socratic and dialogic questioning provides a second mechanism. In this model, questioning probes reasons, evidence, assumptions, implications, counterexamples, and alternatives. It does not conceal a predetermined answer behind a sequence of leading questions. Prompts such as 'What makes you think that?', 'What evidence supports your view?', 'What might happen if the situation changed?', and 'Which reason is stronger, and why?' require pupils to make their thinking explicit. Dialogic teaching extends the process by enabling pupils to respond to one another and revise their ideas. Evidence on classroom dialogue indicates that productive talk can support reasoning when participation is purposeful and teachers use follow-up questions to develop ideas (Howe & Abedin, 2013; Mercer et al., 2004; Xie & Lin, 2025).

Graphic organisers complement dialogue by making relationships among actions, motives, causes, consequences, evidence, values, and possible solutions visible. A Venn diagram can support comparison, a T-chart can organise reasons for and against an action, a fishbone diagram can distinguish causes and contributing factors, and a cause-effect-solution chain can connect behaviour with consequences and responses. Meta-analytic research has linked graphic organisers with improved comprehension and higher-order thinking (Dexter & Hughes, 2011; Kansizoglu, 2017; Lei et al., 2026). Within Tarbiya, the organiser functions as a cognitive scaffold when pupils must decide how ideas relate, rather than copy a completed diagram.

These components define a teacher-development pathway. The intervention targets pre-service teachers' methodological competence, which is expected to support lesson design and implementation that provide pupils with more opportunities to practise reasoning. Only teacher-level competence was quantified in this pilot. Figure 1 shows the intended progression from teacher preparation to classroom practice and, ultimately, pupil outcomes, while marking the boundary of the evidence reported here.

Figure 1

Conceptual Pathway From Teacher-Education Intervention to Intended Pupil Outcomes



Note. The pilot quantified pre-service teacher methodological competence only; pupils' logical-reasoning outcomes were not directly measured.

Method

Research Design and Participants

A two-group pretest-posttest quasi-experimental pilot design was used. Sixty third-year students majoring in Primary Education at Andijan State Pedagogical Institute participated: 30 were assigned to the experimental group and 30 to the control group. Allocation was described as based on a principle of parity, but random assignment was not documented. The study is consequently treated as quasi-experimental. The

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similar baseline means reported below indicate approximate initial comparability on the study-specific outcome, although unmeasured selection differences cannot be excluded.

The control group studied Tarbiya methodology through the existing programme of lectures and practical classes. The experimental group received a specially designed modular methodology supported by the author's teaching manual for preparing pre-service primary teachers to foster logical reasoning in Grade 4 Tarbiya lessons (Ummatkulova, 2025). The available study documentation does not specify the complete intervention timetable, total number of sessions, or total instructional hours.

Intervention

The experimental methodology integrated moral-logical dilemmas, Socratic and dialogic questioning, and graphic or visual systematisation. Pre-service teachers practised converting Tarbiya topics into tasks that required pupils to analyse, classify, explain causal relationships, use conditional reasoning, select evidence, compare alternatives, and reflect. The intervention embedded these processes in task design and classroom facilitation rather than treating logic as a separate set of exercises.

A documented Grade 4 lesson on air pollution illustrates the approach. The 40-45-minute lesson began with reasoned true-or-false statements, with pupils required to justify each response. A problem scenario involving vehicle exhaust and burning waste then asked small groups to identify causes and consequences and formulate an if-then solution. Pupils classified cards such as car smoke, factory smoke, dust, trees, bicycles, public transport, and ventilation as pollution sources or constructive responses, then built source-effect-solution chains. Groups selected evidence and explained why it was persuasive. The lesson concluded with a practical action plan and an individual reflection ticket. Logical reasoning was thus embedded in concrete, age-appropriate Tarbiya content.

The same design logic can be applied to other Tarbiya themes. Responsibility can be explored through consequences and obligations; trust through evidence and competing duties; cooperation through individual and group outcomes; and digital behaviour through the evaluation of information and consequences. In each case, lesson planning begins by identifying the reasoning process to be elicited and then aligning questions, activities, and assessment with that process.

Outcome Measure and Analytical Strategy

Pre-service teachers' methodological preparation was represented by a study-specific 100-point composite score covering three criteria: lesson-plan construction, pedagogical-logical thinking, and practical teaching proficiency. Study documentation also referred to a pedagogical adaptation of Krutetsky's methodology but did not provide the adapted items, scoring weights, reliability evidence, validation procedures, or inter-rater agreement. The 100-point score is therefore reported as a local composite indicator of methodological preparation. It is not interpreted as a standardised measure of general intelligence, general critical-thinking ability, or pupils' logical reasoning.

Only group sample sizes and pretest and posttest means were available for analysis. Participant-level scores, standard deviations, standard errors, confidence intervals, and the output of the reported inferential test were unavailable. Accordingly, the analysis is descriptive. Absolute gain was calculated as the posttest mean minus the pretest mean. Relative change was calculated by dividing the gain by the pretest mean and multiplying by 100. The difference in gains was calculated by subtracting the control-group gain from the experimental-group gain.

Ethical and Reporting Considerations

The available study documentation did not include an institutional ethics approval identifier or a detailed consent statement. No ethics approval number or consent procedure is reported in the absence of supporting documentation. The analysis uses only aggregate pre-service teacher scores and contains no personally identifying information.

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Results

The two groups began with similar mean scores on the study-specific methodological-preparation indicator: 62.1 points in the experimental group and 61.5 points in the control group, a baseline difference of 0.6 points. At posttest, the experimental-group mean was 85.4, whereas the control-group mean was 67.8. The experimental group therefore gained 23.3 points. Relative to its baseline mean, this corresponds to a 37.5% increase. The control group gained 6.3 points, corresponding to a 10.2% relative increase. The between-group difference in absolute gains was 17.0 points, and the posttest mean difference was 17.6 points (Table 1).

The descriptive pattern favours the experimental condition, but the available aggregate data do not permit estimation of sampling uncertainty. No confidence interval, standardised effect size, or reproducible inferential test is reported. A practical-teaching observation also recorded that 80% of experimental participants shifted pupils from passive listening towards active logical problem solving. Because the observation rubric, assessor procedure, denominator, and corresponding control-group percentage were not documented, this observation is not included in the formal quantitative analysis.

Table 1

Descriptive Changes in Methodological-Preparation Scores

Group	Pretest mean	Posttest mean	Gain (points)	Relative change
Experimental	62.1	85.4	23.3	37.5%
Control	61.5	67.8	6.3	10.2%

Note. Relative change was calculated by dividing the gain by the pretest mean and multiplying by 100. Participant-level data and variance statistics were unavailable; no inferential test, confidence interval, or standardised effect size is reported.

Discussion

The descriptive results suggest that reasoning can be incorporated into Tarbiya teacher preparation while preserving the subject's moral and civic purposes. The experimental group showed a larger gain on the study-specific methodological-preparation score than the control group. This pattern is consistent with evidence that critical-thinking skills benefit from explicit instruction and practice in meaningful contexts (Abrami et al., 2015). It also accords with teacher-education research showing that pre-service teachers need pedagogical knowledge for eliciting and supporting critical thinking (Bubikova-Moan et al., 2026; Huang & Sang, 2023). The present data, however, establish a descriptive difference only; they do not determine whether the intervention itself caused that difference.

Tarbiya offers a credible setting for this work because many of its themes contain relationships that can be examined through reasoning. Responsibility involves consequences and obligations; trust involves evidence, reliability, and competing duties; environmental stewardship depends on causal reasoning; and citizenship requires consideration of individual and collective interests. The Grade 4 air-pollution lesson shows how a civic and environmental theme can be taught through classification, causal chains, conditional statements, evidence selection, and practical planning. In this form, moral learning and intellectual activity reinforce one another.

Questioning is one plausible mechanism behind the model. Conventional recitation questions often verify recall, whereas Socratic and dialogic prompts ask learners to articulate reasons, examine assumptions, compare explanations, respond to counterexamples, and revise claims. Research on classroom dialogue indicates that children can learn to use talk as a tool for collective reasoning and that dialogic programmes can support classroom interaction and teacher development (Mercer et al., 2004; Xie & Lin, 2025). For teacher education, the implication is practical: questioning needs rehearsal through lesson design, microteaching, observation, and reflection. Productive dialogue also depends on wait time, follow-up probing, equitable participation, and the teacher's ability to distinguish a claim from a reason.

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Moral-logical dilemmas and visual organisers support different parts of the same process. Dilemmas create cognitive tension and invite pupils to weigh evidence, values, and consequences; their usefulness depends on disciplined facilitation (Blatt & Kohlberg, 1975; Kilby, 2025; Wei & Chen, 2025). Graphic organisers make reasoning relationships visible and can scaffold comparison, causal analysis, and evaluation (Dexter & Hughes, 2011; Lei et al., 2026). Their strongest pedagogical use is likely to occur when pupils construct or complete an organiser as part of an explanation. Copying a finished diagram may organise information, but it does not necessarily require pupils to determine which relationships are justified.

The model also highlights alignment within teacher education. If a lesson objective refers to analysis, justification, or decision making, the learning task and assessment need to require those processes. Methodology courses can ask pre-service teachers to identify a target reasoning process, specify the evidence that would demonstrate it, and design prompts that move pupils from an initial answer towards an explained and defensible conclusion. Teacher educators can reinforce this alignment by modelling the same pedagogy in university classes. Reasoning-oriented lesson planning can then be rehearsed through peer microteaching and observed during school practicum, using a common rubric focused on the reasoning objective, cognitive demand of the task, quality of prompts, use of evidence, pupil explanation, and reflective closure.

Several alternative explanations should be considered when interpreting the group difference. The experimental condition may have benefited from novelty, additional instructional attention, or closer alignment between the intervention activities and the study-specific composite score. Group allocation was not documented as random, and the available records do not establish whether assessors were blind to condition. Practice effects or differences in implementation may also have contributed to the observed change. These possibilities cannot be separated with the aggregate data available here, but they are important targets for a confirmatory design.

The study has further limitations. It involved 60 participants at one institution, which limits generalisability. Only group means and sample sizes were available, preventing calculation or verification of standard deviations, confidence intervals, standardised effect sizes, and inferential tests. The 100-point composite outcome lacks a fully documented scoring manual and psychometric evidence in the available materials, and intervention duration and instructional dosage were not specified. Ethics and consent documentation was also unavailable. Most importantly, pupils' logical reasoning was not measured directly; the quantitative findings concern pre-service teachers' methodological preparation.

A confirmatory study would benefit from a prospectively specified, multi-site design. Random allocation is preferable where feasible; otherwise, matching and baseline-equivalence procedures need clear documentation. The intervention manual should specify duration, sequence, learning objectives, and fidelity indicators. Teacher competence could be assessed with published scoring criteria and at least two trained raters for performance tasks, with inter-rater reliability reported. Preserving individual-level pretest and posttest data would allow estimation of group-by-time effects with confidence intervals and standardised effect sizes. Direct pupil measures of causal inference, classification, evidence-based explanation, and evaluation of alternatives would make it possible to test the full pathway shown in Figure 1.

Conclusion

This study presents a reasoning-oriented pedagogical model for preparing pre-service primary teachers to teach Uzbekistan's Tarbiya subject. The model integrates moral-logical dilemmas, Socratic and dialogic questioning, graphic organisers, causal analysis, conditional reasoning, evidence-based justification, and reflection. The descriptive pilot results favour the experimental group: its mean methodological-preparation score increased from 62.1 to 85.4, compared with an increase from 61.5 to

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67.8 in the control group. These changes represent gains of 23.3 and 6.3 points, respectively, and a 17.0-point between-group difference in gains.

Interpretation of these findings is necessarily limited by the available evidence. Statistical significance and standardised effect sizes cannot be verified, randomisation was not documented, and pupil logical-reasoning outcomes were not measured directly. Even so, the model shows how Tarbiya teacher education can make reasoning objectives explicit and equip pre-service teachers with practical methods for eliciting explanation, comparison, inference, justification, and reflection. A rigorously documented multi-site study with validated measures, individual-level data, and direct pupil outcomes is needed to determine the reliability, magnitude, and transfer of the observed pattern.

Data Availability and Research Integrity

The analysis is based on aggregate results available in the study documentation. Individual participant scores, variance statistics, the reported inferential-test output, and full psychometric documentation of the 100-point composite measure were unavailable for reanalysis. No unreported statistics are presented. Ethics and consent details are not reported because supporting documentation was unavailable.

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INNOVATIVE METHODS FOR DEVELOPING CRITICAL AND CREATIVE THINKING IN FRENCH AND UZBEK LANGUAGE EDUCATION

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ABSTRACT

The rapid expansion of accessible information has shifted the purpose of language education from the transmission of ready-made knowledge towards the cultivation of independent judgement and inventive problem solving. This article examines how critical thinking, creative thinking, and the design approach can be integrated into the comparative teaching of French and Uzbek. Working from a conceptual and analytical review of pedagogical and applied-linguistic sources, the study argues that the three constructs are complementary rather than competing: critical thinking enables learners to analyse, compare, and evaluate linguistic and cultural evidence; creative thinking generates original formulations and non-standard solutions; and the design approach converts those solutions into testable products. A six-stage integrated model is proposed in which each stage is associated with a dominant mode of thinking, and a typology of six classroom task formats is developed and illustrated with contrastive French–Uzbek material, including address forms, word-order differences arising from the agglutinative structure of Uzbek, and proverb equivalence. The analysis indicates that such tasks develop linguistic, intercultural, and problem-solving competence simultaneously, and that they require a redefinition of the teacher's role from provider of information to organiser of inquiry.

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Keywords: *critical thinking, creative thinking, design thinking, French as a foreign language, Uzbek, contrastive analysis, project-based learning, competence.*



Introduction

The accelerated development of science and technology has placed new demands on education systems. A student today may have access to an unprecedented volume of information, yet volume alone confers no advantage. What matters is the ability to analyse that information correctly, to separate reliable from unreliable material, to apply it in practical situations, and to generate new ideas from it. Developing critical and creative thinking has therefore become one of the central tasks of contemporary education. Learners are expected not merely to memorise knowledge but to understand its content, to ask questions, to compare competing views, to defend their positions with evidence, and to propose new solutions to existing problems (Morin, 1999).

A second shift is the entry of the design approach into the educational process, which orients learners towards work on real problems. Through design thinking a learner identifies a problem, investigates its causes, generates a range of ideas, produces an initial model of a solution, and subjects that model to testing (Razzouk & Shute, 2012).

These shifts have particular force in foreign language education. Memorising grammatical rules is not sufficient. Learners must be able to use the language they have studied in genuine communicative

situations, to justify their opinions, to compare cultures, and to draw independent conclusions. The comparative study of French and Uzbek widens these opportunities considerably, because the two languages belong to different families and encode social relations in visibly different ways (Beacco, 2000).

In Uzbekistan, where French is taught mainly as a second or third foreign language and where the reform of higher language education is ongoing, the question is a practical one: what concrete classroom procedures make critical thinking, creativity, and design work possible in a French language classroom whose learners share Uzbek as a first language? The present article addresses that question. It has three aims: to clarify the relationship between critical thinking, creative thinking, and the design approach as they apply to language teaching; to propose an integrated model that links them to the stages of a design cycle; and to develop a typology of classroom tasks, illustrated with contrastive French–Uzbek material, that puts the model into operation.

Theoretical Background

Critical Thinking in Language Learning

The most widely cited definition of critical thinking is the consensus statement produced by the Delphi panel convened under the auspices of the American Philosophical Association, which describes it as purposeful, self-regulatory judgement resulting in interpretation, analysis, evaluation, and inference, together with an account of the evidential and conceptual considerations on which that judgement rests (Facione, 1990). Paul and Elder (2006) add the dispositional dimension, arguing that intellectual humility, perseverance, and fair-mindedness matter as much as procedural skill.

Applied to language learning, the significance of critical thinking is that information is not simply received but analysed, compared, evaluated, and used as the basis for a reasoned conclusion. In the language classroom this means replacing ready-made answers with questions and problem situations that oblige the learner to think. Meirieu (1987) had already argued that instruction organised around the learner's own cognitive activity produces more durable learning than instruction organised around the delivery of content. Where traditional teaching required students to recall and reproduce information, contemporary teaching prompts them with questions such as "Why?", "How?", and "What is the evidence for this?"

Creative Thinking

Creative thinking is the capacity to draw on existing knowledge and experience in order to produce new and original ideas. In the contemporary labour market, the ability to innovate and to find solutions in non-standard situations is highly valued. In the classroom, creative thinking can be developed through open questions, creative assignments, projects, debates, role plays, and practical tasks. An instruction such as "Solve the given problem in at least three different ways" prevents the learner from searching for a single ready answer and requires the development of several new solutions. Learners who think creatively look for unusual solutions, are not afraid to experiment, express their views freely, and treat mistakes as a source of experience (Azizxo'jayeva, 2006). Dehaene (2018) offers a complementary account from cognitive neuroscience, identifying active engagement, error signals, and consolidation among the conditions under which the brain learns efficiently, which supports pedagogies that treat error as informative rather than as failure.

The Design Approach

In education, the design approach does not mean producing an attractive image or graphic layout. Brown (2008) characterises design thinking as a human-centred method of meeting people's needs in a way that is technically feasible and strategically viable. Reviewing the empirical literature, Razzouk and Shute (2012) define it as an analytic and creative process that engages a person in opportunities to experiment, to create and prototype models, to gather feedback, and to redesign.

The approach proceeds through identifiable stages: establishing what the problem is; investigating the problem and its causes; generating a range of possible solutions; producing an initial model of the

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chosen idea; testing that solution; and improving it on the basis of the results obtained. The sequence teaches learners not only to acquire theoretical knowledge but to apply that knowledge in practical activity.

An Integrated Model

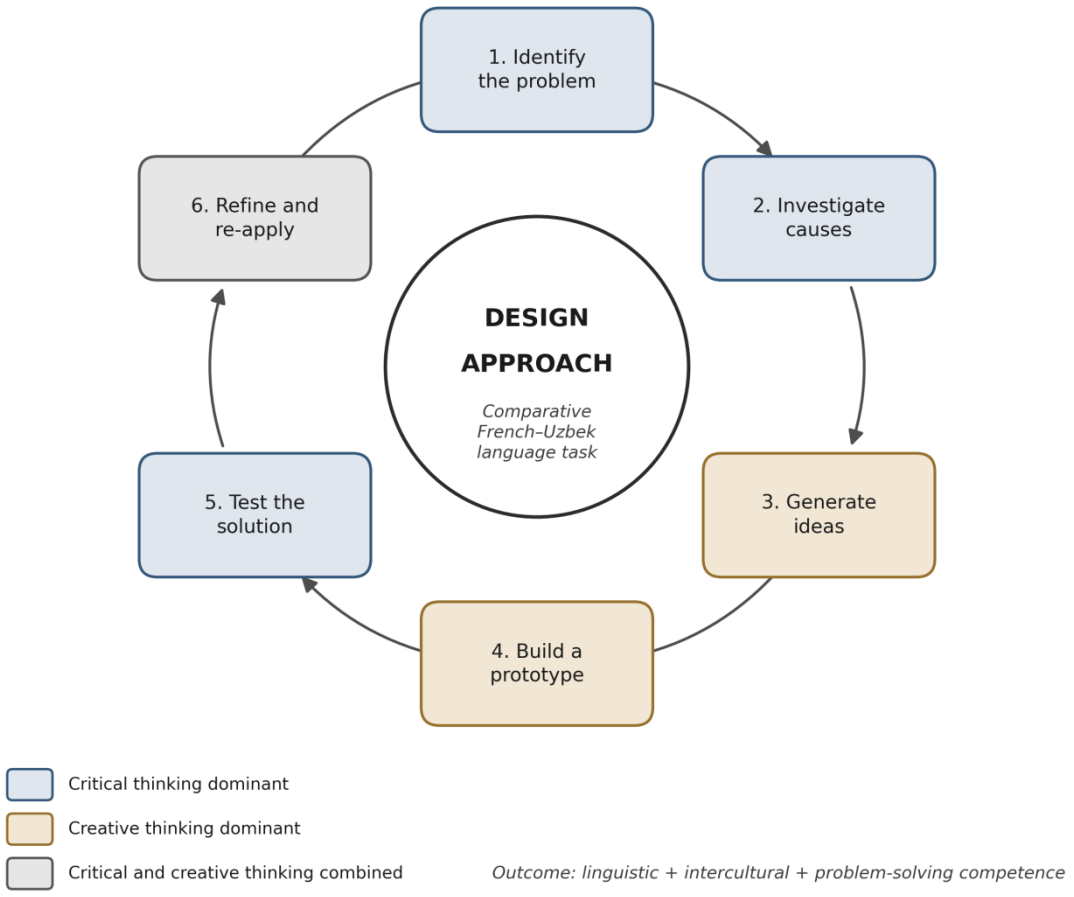
Critical thinking, creative thinking, and design complement one another. Critical thinking supports a deep understanding of the problem and an evaluation of existing solutions; creative thinking serves the generation of new ideas; and design makes it possible to turn those ideas into practical outcomes (Perrenoud, 1997).

The relationship is easiest to see in a concrete case. Suppose learners are given the problem "How can reading be increased at school?" Using critical thinking, they identify the causes of the problem. Using creative thinking, they develop a range of ideas. Using the design approach, they turn the most viable idea into a project or prototype, and on the basis of the test results they refine it. A learner may propose five ideas for solving a problem, which is the result of creative thinking; at the next stage the same learner compares those ideas in terms of feasibility, cost, time, and usefulness, which is a critical-thinking process. Creative thinking generates the idea, critical thinking evaluates it, and design converts it into a practical solution.

Figure 1 presents this relationship as a six-stage cycle in which each stage is associated with a dominant mode of thinking.

Figure 1

An Integrated Critical–Creative–Design Cycle for Comparative French–Uzbek Language Instruction



Note. The cycle is closed: refinement at stage 6 returns the learner to a redefinition of the problem at stage 1. Stage labels follow the design sequence described by Razzouk and Shute (2012); the assignment of a dominant mode of thinking to each stage is the author's own.

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As Figure 1 indicates, the cycle is closed rather than linear: refinement returns the learner to a redefinition of the problem. This is consistent with a competence-based orientation, in which what has been learned is demonstrated through action across a family of situations rather than through recall alone (Perrenoud, 1997).

Method

This study is conceptual and analytical rather than experimental. It draws on three bodies of material. The first is the theoretical literature on critical thinking, creative thinking, and design thinking. The second consists of policy and reference documents for language education, in particular the Companion Volume to the Common European Framework of Reference, which extends the framework with descriptors for mediation and for plurilingual and pluricultural competence (Council of Europe, 2020). The third is contrastive French–Uzbek linguistic material drawn from teaching practice in the Department of French Philology at Uzbekistan State World Languages University.

The analysis proceeded in three steps. First, the three constructs were characterised on the basis of the source literature and their points of contact were identified. Second, the six-stage design cycle reported in that literature was mapped onto the modes of thinking that dominate at each stage, which produced the model shown in Figure 1. Third, six task formats already familiar in Uzbek language pedagogy were re-described in terms of that model and illustrated with contrastive examples, which produced the typology shown in Table 1. The proposals that follow are therefore offered as a framework for instructional design and for subsequent empirical testing, not as findings from a controlled intervention.

Findings and Discussion

Critical Thinking Through Contrastive Analysis

Contrastive work between French and Uzbek supplies ready material for critical analysis, because the two languages encode social relations differently. Address forms are the clearest example. French uses *vous* in formal communication and *tu* in informal situations, while Uzbek uses *siz* to express respect and formality and *sen* to express closeness.

The pedagogical value lies in the question that follows: why do different languages have different address forms, and how do these forms reflect relationships within a society? The question moves the learner beyond memorising a grammatical rule and towards an analysis of the connection between language and society. It corresponds closely to what Byram (1997) termed critical cultural awareness, the ability to evaluate perspectives and practices in one's own culture and in others on the basis of explicit criteria.

Word order provides a second site for analysis:

Uzbek: *Men kitob o'qidim.* (literally, 'I book read')

French: *J'ai lu un livre.* (literally, 'I have read a book')

Learners compare the two sentences and identify differences in the position of the verb, in grammatical marking, and in overall sentence structure. They then look for an answer to the question of why sentence structure is not the same across languages. Uzbek belongs to the Turkic family and is agglutinative, so grammatical relations are carried by suffixes attached to the stem; French belongs to the Romance group and relies more heavily on auxiliaries, articles, and fixed constituent order. The process teaches learners to observe, compare, supply evidence, and draw conclusions. Rather than presenting the contrast as a difficulty to be corrected, the teacher presents it as data to be explained.

Creative Thinking Through Productive Intercultural Tasks

Creative work in language teaching can be organised through dialogue construction, story building, role plays, project work, text creation from a picture, and the resolution of problem situations. A representative assignment is the following: introduce the city of Tashkent to a French tourist who has arrived in Uzbekistan from Paris.

Here the learner uses French to create an original text about Uzbek culture, national dishes, historical monuments, and everyday life. Expressing one's own culture in another language develops

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cultural competence alongside linguistic competence, and it exercises precisely the mediating function that the Companion Volume places at the centre of plurilingual and pluricultural competence (Council of Europe, 2020).

A second creative assignment asks learners to compare proverbs and idioms across the two languages. For example:

Uzbek: *Yetti o'lchab, bir kes.* ('Measure seven times, cut once.')

French: *Mieux vaut prévenir que guérir*. ('Prevention is better than cure.')

Learners identify similarities and differences in meaning and explain the situations in which each expression is used. The task is creative in that it requires learners to construct equivalence rather than retrieve it, and critical in that the proposed equivalence has to be justified. Beacco (2000) argues that the cultural dimension of language teaching is best approached through discourse rather than through lists of cultural facts, and comparative proverb work is one practical realisation of that principle.

Design-Based Project Work

The design approach turns the learner into an active participant. A representative project assignment is to design a mobile application for young Uzbek learners who are beginning to study French. In the course of the project, learners identify the needs of language learners, define the problem, propose the main functions of the application, create a French–Uzbek glossary together with exercises or dialogues, develop an initial interface design, present the project, and analyse the comments of other groups. Such an assignment develops language competence, critical thinking, creativity, teamwork, and design skills at the same time.

The presentation and peer-review stage is not decorative. It is the testing stage of the cycle shown in Figure 1, and it is the point at which evaluation criteria must be made explicit if the activity is to yield critical thinking rather than politeness. Groups can be asked to assess each proposal against feasibility, cost, time, and usefulness, which are the same four criteria used to compare ideas at the earlier stage of the cycle.

A Task Typology for the French–Uzbek Classroom

The six formats collected in Table 1 are already established in Uzbek pedagogical practice, where they are widely used as interactive teaching techniques (Tolipov & Usmonboyeva, 2006); what the present framework adds is an explicit mapping of each format onto a stage of the design cycle and onto the mode of thinking that stage requires. Table 1 sets out the six formats, the classroom procedure each involves, the stage to which it corresponds, and an illustrative example drawn from French–Uzbek material.

Table 1

Task Typology for Developing Critical and Creative Thinking in Comparative French–Uzbek Language Classes

Task format	Classroom procedure	Design-cycle stage	Illustrative French–Uzbek example
Compare and conclude (*Taqqosla va xulosa qil*)	Learners set two grammatical or lexical units side by side, describe the differences, and formulate a generalisation.	1–2 Identify and investigate	Contrast *Men kitob o'qidim* with *J'ai lu un livre* and account for the position of the verb.
Problem situation (*Muammoli vaziyat*)	Learners receive a realistic communicative situation and must produce a solution and justify it.	1–2 Identify and investigate	A guest at a formal reception is addressed with *tu*; decide what has gone wrong and how to repair it.
Brainstorming (*Aqliy hujum*)	Learners generate as many ideas as possible without evaluation, then cluster them.	3 Generate ideas	List every French formula available for a polite request, then group them by degree of formality.

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Task format	Classroom procedure	Design-cycle stage	Illustrative French–Uzbek example
Role entry (*Rolga kirish*)	Learners stage communicative situations in both languages and then exchange roles.	3–4 Generate and prototype	Enact the same complaint in a Tashkent shop and in a Paris shop; compare the strategies used.
Create a project (*Loyiha yaratish*)	Groups produce a poster, mobile application, glossary, or video script that supports language learning.	4–5 Prototype and test	Design a French-learning application for Uzbek beginners, present it, and collect peer feedback.
Provide evidence (*Dalil keltir*)	Learners are required to support an opinion with examples and explicit evidence.	5–6 Test and refine	Argue, with textual examples, whether *Yetti o'lchab, bir kes* and *Mieux vaut prévenir que guérir* are true equivalents.

Note. Uzbek task names are given in italics in the first column. Stage numbers refer to the six stages of the cycle shown in Figure 1.

The six formats can be used separately, but the model in Figure 1 suggests that they gain force when they are sequenced. A teaching unit might open with "compare and conclude", move through "brainstorming" and "role entry", and close with "create a project" and "provide evidence", so that learners pass through the entire cycle within a single topic. The typology also makes the distribution of cognitive demand visible to the teacher, which is useful when a syllabus has to balance productive work against grammatical coverage.

The Changing Role of the Teacher

In teaching based on critical and creative thinking, the role of the teacher also changes. The teacher is no longer only a provider of knowledge but a person who organises and directs the learner's independent inquiry. In concrete terms, the teacher asks open and problem-based questions, respects divergent opinions, creates an environment in which mistakes are not feared, organises group and project work, encourages learners to justify their views, rewards creative ideas, and attends to the process as well as to the result when assessing learners' activity. Such an environment increases learners' self-confidence and strengthens their engagement in the educational process. Perrenoud (1999) describes this shift in terms of new professional competences for teaching, among them the capacity to organise situations that make learning possible and to involve learners in their own assessment.

Assessment Implications

If the process matters as much as the product, then assessment must record the process. Three instruments follow from the model. Process portfolios collect the successive versions of a prototype together with the learner's written justification for each revision, which makes the refinement stage visible. Analytic rubrics separate linguistic accuracy from the quality of reasoning, so that a well-argued text containing grammatical errors is not confused with a fluent text that argues nothing. Peer assessment, guided by explicit criteria of the kind described above, makes the testing stage of the cycle assessable and gives the criteria a genuine function rather than a ceremonial one.

Limitations and Further Research

The framework proposed here has not been tested experimentally, and its claims about learning outcomes are derived from the literature and from classroom observation rather than from measured gains. A further constraint is time: design cycles are slower than exercise-based teaching, and in curricula with heavy grammatical coverage requirements the full six-stage cycle may be feasible for only one or two units per semester. Comparative work also presupposes teachers who are confident in both languages, which is not uniformly the case. The obvious next step is empirical: a study comparing classes taught with and without the task typology, using a standardised critical-thinking measure alongside conventional proficiency measures, would establish whether the gains claimed here can be observed.

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Conclusion

Critical thinking, creative thinking, and design are integral components of contemporary education. Education today requires learners not only to acquire a certain quantity of knowledge but to use that knowledge to make independent decisions, analyse problems, generate new ideas, and develop practical solutions. Critical thinking teaches learners to analyse and evaluate information, creative thinking teaches them to generate new ideas, and the design approach teaches them to convert those ideas into a real product or solution.

Combining the three in the teaching of French and Uzbek serves to increase the effectiveness of instruction. In such an approach the learner is not a passive recipient of ready-made knowledge but an active subject who seeks knowledge independently, analyses it, and creates something new. Through the comparison of French and Uzbek, learners come to understand not only the grammatical and lexical features of the two languages but also the cultural values and communicative traditions of the two peoples.

The contribution of this article is twofold: a six-stage model that assigns a dominant mode of thinking to each phase of the design cycle, and a typology of six task formats that puts the model into operation with contrastive French–Uzbek material. The wide use of problem situations, project work, debate, brainstorming, role play, research assignments, and design projects in contemporary language lessons is accordingly one of the important means of raising the quality of education. As a result of these approaches, learners are formed as independent thinkers who are prepared for future professional and social activity and who are capable of producing innovative solutions.

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PSYCHOLOGICAL AND PEDAGOGICAL FACTORS IN DEVELOPING LOGICAL AND CRITICAL THINKING IN PRIMARY SCHOOL PUPILS: AN INTEGRATIVE CONCEPTUAL REVIEW

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ABSTRACT

The development of logical and critical thinking in primary education is essential for enabling pupils to analyse information, justify conclusions, evaluate alternatives, and regulate their own reasoning. This article presents an integrative conceptual review of the psychological and pedagogical factors that support these capacities in children aged approximately 7–11 years. Drawing on sociocultural theory, research on executive functions, metacognition, cognitive load, scaffolding, dialogic teaching, cognitive conflict, self-regulated learning, and formative assessment, the review distinguishes logical thinking from critical thinking while treating them as developmentally interconnected. The analysis identifies four key psychological resources: motivation and epistemic curiosity, executive functions and prior knowledge, metacognitive regulation, and emotional readiness for intellectual risk. It also identifies five pedagogical conditions: calibrated scaffolding, dialogic interaction, problem- and inquiry-oriented tasks, an error-tolerant classroom climate, and formative feedback focused on reasoning processes. These factors are integrated into a conceptual model centred on appropriately calibrated challenge, explanation, peer reasoning, cognitive conflict, and gradual transfer of responsibility to the learner. The article concludes that logical and critical thinking should be developed systematically across primary-school subjects, while the proposed framework requires empirical validation in Uzbek educational settings.

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Keywords: *primary school pupils; logical thinking; critical thinking; metacognition; scaffolding; dialogic teaching; formative assessment; zone of proximal development.*

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Introduction

Contemporary schooling no longer faces scarcity of information as its central educational challenge. Children encounter explanations, opinions, visual messages, and competing claims through textbooks, digital media, family communication, and peer interaction. Primary education must therefore help pupils identify relevant information, compare alternatives, justify conclusions, revise an initial position when evidence changes, and apply reasoning in unfamiliar situations. This stage is especially important because it establishes habits of inquiry, classroom participation, self-regulation, and intellectual responsibility that can shape later learning.

Educational reform in Uzbekistan likewise emphasises teaching quality, professional competence, and the preparation of learners who can think independently. Presidential Decree No. PF-6108 of 6 November 2020 places education, upbringing, and science within the country's wider development agenda (President of the Republic of Uzbekistan, 2020). In this policy context, reasoning is not a peripheral skill.

It contributes to conscious learning, responsible communication, and justified judgement, reducing dependence on authoritative answers alone.

Primary school, understood here as approximately ages 7–11, is a significant period for the development of cognitive and metacognitive resources that support reasoning. Executive functions, including working memory, inhibitory control, and cognitive flexibility, continue to develop during childhood and help pupils hold information in mind, resist impulsive responses, and consider alternatives (Diamond, 2013). Metacognitive knowledge and monitoring also develop across childhood, and young learners benefit when teachers make planning, checking, explaining, and revising strategies explicit (Flavell, 1979; Dignath et al., 2008). The educational question is how instruction can make complex thinking increasingly disciplined, visible, and independent.

This review examines the interaction between psychological resources within the learner and pedagogical conditions created through instruction. An advanced teaching method cannot compensate for disengagement or insufficient prior knowledge. At the same time, curiosity alone does not produce disciplined reasoning if lessons do not require evidence, explanation, comparison, and revision. Three questions guide the review: How should logical and critical thinking be distinguished at primary-school level? Which psychological and pedagogical factors are most defensible as core conditions for their development? Through which classroom mechanisms can these factors be coordinated without creating passive reception or excessive cognitive demand?

Conceptual and Theoretical Foundations

Logical thinking and critical thinking are related but not synonymous. Logical thinking concerns the organisation of relationships among ideas and the use of defensible inferential operations. In primary classrooms, it is visible when pupils classify objects according to relevant attributes, compare cases systematically, identify patterns, distinguish cause from sequence, analyse a whole into components, synthesise information, generalise cautiously from examples, or explain why a conclusion follows from given information. These operations provide an intellectual structure for problem solving.

Critical thinking incorporates these logical operations and adds evaluation and self-regulation. Facione's (1990) Delphi report identified interpretation, analysis, evaluation, inference, explanation, and self-regulation as central critical-thinking skills. More recent work likewise treats critical thinking as purposeful judgement, not mere scepticism (Abrami et al., 2015; Halpern & Dunn, 2023). A pupil who detects a pattern is reasoning logically; a pupil who asks whether the evidence is sufficient, considers another explanation, and revises a conclusion after encountering contradictory evidence is engaging in a more recognisably critical form of thinking. At primary-school level, such thinking can be cultivated through developmentally appropriate acts of justification, comparison, checking, and revision (Kuhn, 1999).

Several psychological resources support this development. Executive functions help pupils maintain and reorganise information, inhibit an immediate but weak response, and shift between perspectives (Diamond, 2013). Relevant prior knowledge is equally important because classroom reasoning is always applied to some subject matter: pupils need enough knowledge of a text, mathematical relationship, or social situation to understand and compare plausible alternatives. Critical-thinking instruction should therefore remain connected to the content through which reasoning is exercised.

Metacognition provides a second foundation. Flavell (1979) distinguished knowledge about cognition from the monitoring and regulation of cognitive activity. In classroom terms, metacognition becomes visible when pupils select a strategy, check whether an answer is reasonable, identify confusion, or explain why they changed their mind. Kuhn and Dean (2004) describe metacognition as an important bridge between cognitive research and educational aims related to critical thinking. Evidence from self-regulated-learning interventions also indicates that primary-school pupils can benefit from explicit instruction in cognitive, metacognitive, and motivational strategies (Dignath et al., 2008).

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The sociocultural perspective places these individual resources within interaction. Vygotsky (2012) argued that higher psychological functions develop through socially mediated activity and language. The zone of proximal development directs attention to tasks that a learner cannot yet complete independently but can accomplish with appropriate support. Scaffolding describes temporary assistance that enables such performance (Wood et al., 1976). Effective scaffolding is contingent on the learner's current understanding and is progressively withdrawn as competence increases (van de Pol et al., 2010). The same principle helps explain why cognitive demand must be calibrated. Difficult tasks do not automatically develop thinking; when too many unfamiliar elements must be processed at once, working-memory resources can be overloaded (Sweller, 1988). Guided inquiry addresses this problem by combining intellectually demanding tasks with prompts, models, representations, and feedback (Hmelo-Silver et al., 2007).

A related mechanism is cognitive conflict: a situation in which evidence challenges an existing conception. Such conflict can prompt reconsideration, but contradiction alone does not guarantee conceptual change. Pupils may ignore the inconsistency, become confused, or memorise a correction without reorganising their understanding (Limon, 2001). Productive cognitive conflict requires explanation, dialogue, activation of prior knowledge, and sufficient support for the learner to construct a more coherent account.

Method

This article uses an integrative conceptual-review design. It does not report original experimental data or claim measured intervention effects. Its purpose is to synthesise established psychological and educational constructs into a coherent framework for primary education. The reference base includes seminal theoretical works, peer-reviewed reviews and meta-analyses, classroom research on reasoning and dialogue, contemporary critical-thinking literature, an official Uzbek policy document, and relevant Uzbek-context publications by Ummatkulova (2025, 2026).

The literature base focused on work addressing logical or critical thinking, metacognition, executive functions, scaffolding, classroom dialogue, cognitive conflict, cognitive load, self-regulated learning, or formative assessment. Primary-school evidence was prioritised where available, while seminal sources were retained for concepts that remain central to current educational research. Review articles and meta-analyses provided the main basis for broad claims about instructional effectiveness.

The analysis used concept clarification and thematic synthesis. Sources were examined in relation to learner resources, pedagogical conditions, mediating classroom processes, and educational outcomes. Four psychological resources were identified: motivation and curiosity, prior knowledge and executive functions, metacognition and self-regulation, and emotional readiness for intellectual risk. Five pedagogical conditions were identified: contingent scaffolding, dialogic interaction, guided problem and inquiry tasks, an error-tolerant classroom climate, and formative assessment and feedback. Transfer across subjects was treated as a cross-curricular instructional principle, not as an additional factor. Because the review is integrative, it does not claim exhaustive database coverage or calculate pooled effect sizes.

Analytical Findings

The synthesis indicates that logical and critical thinking develop through interaction between learner resources and instructional conditions. Psychological resources influence how pupils respond to intellectual demands, while pedagogical conditions shape how those resources are activated, supported, and reorganised. Development is best examined through the pupil's participation in structured reasoning activities involving language, tasks, peers, and feedback.

Within the proposed framework, motivation and epistemic curiosity form the first psychological resource. Their instructional significance lies in sustaining engagement with uncertainty and giving pupils a reason to investigate a problem instead of waiting for an answer. Teachers can support this orientation by asking for predictions before explanations, offering bounded choice among strategies, and inviting pupils to defend or revise a response. This emphasis is consistent with evidence that primary-school self-

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regulated-learning interventions can combine motivational, cognitive, and metacognitive support (Dignath et al., 2008).

The second psychological resource comprises prior knowledge and executive functions. Reasoning requires pupils to coordinate information, inhibit an impulsive response, and shift between alternatives (Diamond, 2013). Because these operations are applied to specific subject content, teachers need to build knowledge and reasoning together. Vocabulary support, visual representations, worked examples where needed, and structured comparisons can reduce avoidable cognitive load while preserving the intellectual core of a task (Sweller, 1988).

Metacognition and self-regulation constitute the third psychological resource. Young pupils benefit from prompts that make monitoring processes explicit: “What made you choose this method?”, “What evidence supports your answer?”, “How can you check this?”, and “What would make you change your mind?” Such questions focus attention on strategy, evidence, monitoring, and revision rather than final correctness alone. This approach is consistent with metacognitive theory and evidence on self-regulated learning in primary education (Flavell, 1979; Dignath et al., 2008).

Emotional readiness for intellectual risk is the fourth psychological resource. Critical thinking involves expressing incomplete ideas, encountering disagreement, and sometimes revising an initial answer. Within this framework, emotional readiness refers to a pupil's willingness to participate under those conditions; it is not presented as a separately measured trait. Classroom feedback can support that readiness when it distinguishes evaluation of an idea from judgement of personal ability and directs attention to the task, strategy, and next step (Black & Wiliam, 1998; Hattie & Timperley, 2007).

Contingent scaffolding is the first pedagogical condition. Teachers need to identify what a pupil can do independently, provide support at the next attainable level, and reduce that support as competence increases. Scaffolding may involve modelling one step, highlighting relevant information, offering a representation, asking a graduated question, or inviting a peer explanation. Its defining feature is responsiveness to the learner's current understanding, not the use of any single technique (Wood et al., 1976; van de Pol et al., 2010).

Dialogic interaction is the second pedagogical condition. Reasoning develops partly through the need to articulate, compare, and defend ideas in language. Mercer et al. (1999) found that explicitly teaching primary pupils how to use talk for reasoning improved collaborative activity and reasoning performance. Howe et al. (2019) likewise identified forms of teacher-pupil dialogue associated with learning outcomes. Productive dialogue is characterised by reasons, clarification, connections between contributions, and respectful challenge; the quantity of pupil talk alone is not sufficient.

Guided problem and inquiry tasks provide the third pedagogical condition. Non-routine problems, cases, discrepant examples, and tasks with more than one plausible strategy create reasons to compare and justify. The relevant issue is the quality of guidance, not a simple choice between direct instruction and discovery. Minimally guided tasks can overload novices, whereas guided inquiry can support meaningful learning when appropriate structure is embedded in the activity (Hmelo-Silver et al., 2007; Sweller, 1988). Cognitive conflict can be incorporated into such tasks, but contradictions should initiate inquiry and explanation rather than function merely as surprise (Limon, 2001).

An error-tolerant classroom climate is the fourth pedagogical condition. Error tolerance does not mean treating all answers as equally valid; it means keeping incorrect responses available for analysis. Teachers can ask pupils to explain how an answer was reached, identify the point at which reasoning changed direction, and use that information to plan the next instructional move. Formative assessment and feedback comprise the fifth condition. Assessment can value explanation, strategy selection, question generation, and justified revision alongside final accuracy, while feedback can clarify the next step in learning (Black & Wiliam, 1998; Hattie & Timperley, 2007). Across all five conditions, transfer should be addressed explicitly by recurring to reasoning moves such as comparing evidence, identifying assumptions,

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considering alternatives, and checking whether a conclusion follows in different subjects (Abrami et al., 2015; Halpern & Dunn, 2023).

Integrative Mechanism

The factors identified above operate as a dynamic system, not an additive checklist. A curious pupil may still struggle if a task depends on unfamiliar vocabulary or exceeds available working-memory resources. A carefully scaffolded task can also produce little independent reasoning when the teacher supplies each inferential step before pupils have an opportunity to think. The central instructional problem is calibration: prior knowledge, task complexity, emotional safety, and the amount of support provided must be considered together. Within the zone of proximal development, support should make the next reasoning move possible while leaving that move to the pupil.

Classroom dialogue, cognitive conflict, and formative feedback are likewise interdependent. A discrepant example can initiate productive thought when pupils are expected to explain the contradiction and possess enough knowledge to examine it. Dialogue makes competing explanations public and comparable; formative feedback directs attention to evidence, strategy, and logical coherence. Metacognitive prompts complete the cycle by asking pupils to identify what changed in their reasoning and why. With repeated use, questions initially supplied by the teacher—for example, “What evidence supports this?”, “Is there another explanation?”, or “How can this be checked?”—can become questions that pupils increasingly ask themselves. Critical thinking can thus move from socially supported reasoning towards greater self-regulation (Kuhn & Dean, 2004; Vygotsky, 2012).

The framework also cautions against treating instructional labels as guarantees of cognitive quality. Group work can proceed without genuine dialogue, inquiry can be poorly guided, and games can be engaging without demanding substantial reasoning. What matters is whether an activity requires pupils to interpret information, generate or compare reasons, use evidence, monitor understanding, and revise conclusions when justified. These criteria allow critical-thinking development to be embedded in ordinary curriculum content instead of confined to occasional enrichment activities.

Table 1

Core Factors Supporting Logical and Critical Thinking in Primary School

Factor	Developmental function	Illustrative teacher actions	Observable indicators
Motivation and curiosity (psychological)	Supports engagement with uncertainty and sustained participation in reasoning	Use meaningful puzzles; invite predictions; allow bounded strategic choice	Persistence; pupil-generated questions; willingness to compare alternatives
Prior knowledge and executive functions (psychological)	Supports holding, inhibiting, comparing, and reorganising information	Activate relevant knowledge; reduce avoidable load; sequence difficulty; use representations	Fewer impulsive responses; flexible strategy use; coordinated reasoning
Metacognition and self-regulation (psychological)	Makes monitoring and strategy control explicit	Ask pupils to explain, check, identify difficulty, and state what would change a conclusion	Self-checking; error detection; strategy monitoring; justified revision
Emotional readiness for intellectual risk (psychological)	Supports participation when ideas are uncertain, challenged, or revised	Allow thinking time; separate critique of ideas from personal judgement; invite revision	Willingness to share tentative ideas; acknowledgement of uncertainty; justified revision
Contingent scaffolding (pedagogical)	Enables performance beyond current independent capability while preserving agency	Model selectively; cue relevant information; ask graduated questions; fade support	Increasing independence; reduced need for prompts; transfer to similar tasks
Dialogic interaction (pedagogical)	Externalises thought and exposes alternative perspectives	Establish norms for reasoned talk; request evidence; connect contributions; encourage respectful challenge	Elaborated explanations; reference to peers' reasons; comparison of viewpoints
Guided problem and inquiry tasks (pedagogical)	Creates a need to compare, justify, and revise while keeping cognitive demand manageable	Use non-routine problems, cases, discrepant examples, and structured prompts	Comparison of strategies; evidence-based explanations; revision after conflict
Error-tolerant classroom climate (pedagogical)	Keeps incorrect responses available for analysis without lowering intellectual standards	Examine how an answer was reached; normalise correction; challenge ideas respectfully	Open participation; explanation of errors; willingness to reconsider a response

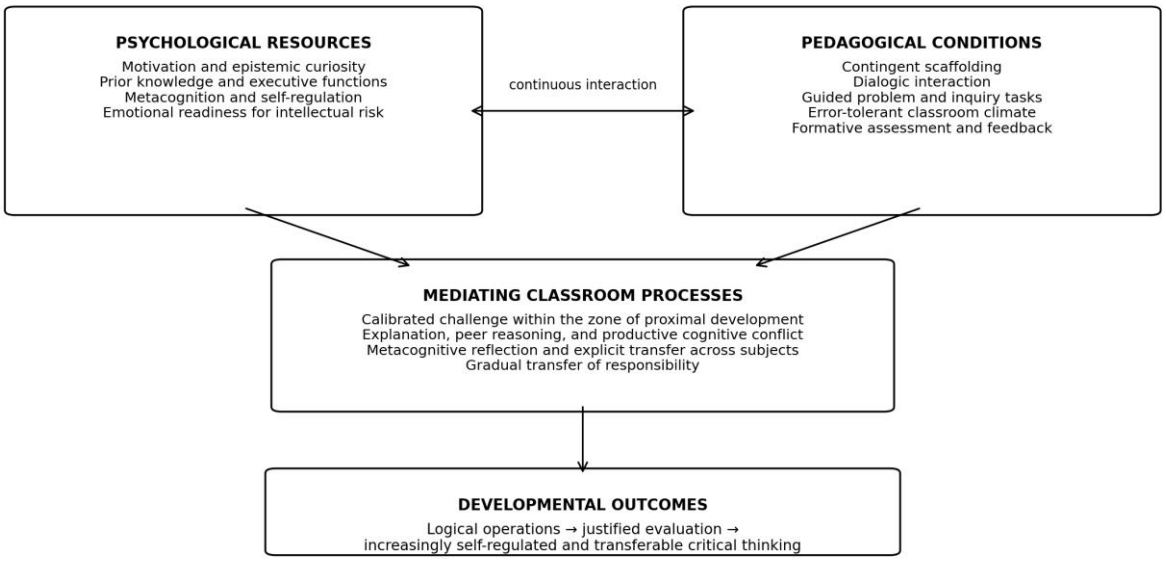
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Factor	Developmental function	Illustrative teacher actions	Observable indicators
Formative assessment and feedback (pedagogical)	Uses evidence about reasoning to guide the next instructional step	Assess explanation as well as accuracy; give task and strategy feedback; prompt self-checking	Use of feedback; clearer strategies; correction with explanation

Note. The framework distinguishes four psychological resources and five pedagogical conditions. It is intended to guide instructional design and future operationalisation; it is not a validated measurement scale.

Figure 1

Integrative Model of Psychological Resources, Pedagogical Conditions, Mediating Processes, and Developmental Outcomes



Discussion and Educational Implications

The framework assigns the primary-school teacher a deliberately balanced role. Direct explanation remains necessary, yet it should be combined with opportunities for pupils to reason for themselves. A worked example may be appropriate at one point; at another, the teacher may withhold an answer and ask pupils to compare strategies, identify evidence, or explain a contradiction. Professional judgement lies in deciding when to explain, question, model, or withdraw support.

In practice, direct teaching and active learning are complementary when the level of guidance is matched to pupils' current understanding. Structure protects limited cognitive resources, while intellectual activity prevents mere imitation. In mathematics, pupils can compare solution paths, identify irrelevant information, explain relationships between operations, and judge whether an answer is reasonable. The question “How else can this problem be solved?” becomes more analytical when followed by “Which method is better here, and why?”, because generating alternatives is then linked to evaluation.

Reading and language lessons offer comparable opportunities. Pupils can distinguish stated information from inference, compare characters' motives, locate textual evidence, and consider whether a narrator's perspective is complete. Tarbiya lessons are particularly suitable for contextualised reasoning because moral and social situations often involve competing values and perspectives. Ummatkulova (2025, 2026) examined logical thinking in Tarbiya and the preparation of future primary teachers for this task. Pupils can be taught to distinguish facts from assumptions, consider consequences, give reasons, and revise a position when stronger evidence emerges.

Assessment should align with these aims. Although well-designed selected-response items can assess more than recall, no single format captures the full process of critical thinking. Constructed responses, oral explanations, strategy annotations, comparison tasks, reflective prompts, and observation of group dialogue can provide evidence about reasoning. Rubrics can distinguish unsupported answers

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from relevant reasons, use of evidence, consideration of alternatives, and justified revision. Such evidence is most valuable when it informs immediate instructional decisions.

Teacher education must go beyond a repertoire of interactive techniques. Teachers need knowledge of children's reasoning, skill in designing tasks of graduated difficulty, competence in dialogic questioning, and the ability to interpret errors diagnostically. They should also examine how classroom discourse shapes participation: rapid correction, frequent evaluation, or answering one's own questions can imply that speed and compliance matter more than reasoning. Repeated routines for justification, comparison, checking, and revision are likely to be more sustainable than occasional elaborate “critical-thinking activities”.

Limitations and Directions for Future Research

The review has limitations arising from its design. It is integrative, not systematic, and does not claim exhaustive coverage of databases, languages, or instructional traditions. The framework should be interpreted as a theoretically grounded synthesis; it does not quantify the relative importance of each factor. In addition, much of the strongest empirical evidence cited here comes from educational systems outside Uzbekistan. Classroom authority, peer interaction, willingness to disagree, and responses to error are culturally and institutionally shaped, so pedagogical practices may require contextual adaptation.

Future research in Uzbek primary schools should operationalise the proposed constructs before testing causal claims. Studies should distinguish outcomes such as logical operations, argument evaluation, metacognitive monitoring, and transfer, avoiding their combination into a single broad thinking score. Mixed-method designs could combine age-appropriate performance measures with classroom observation, pupil explanations, and teacher interviews. Intervention studies should also document instructional fidelity and mediating processes, including the quality of teacher prompts, distribution of participation, use of contingent scaffolding, and gradual transfer of responsibility. Longitudinal research would be particularly valuable because independent critical thinking is unlikely to emerge from a short, isolated intervention.

Conclusion

Logical and critical thinking in primary education are neither spontaneous consequences of maturation nor products of a single instructional technique. They develop through repeated interaction between learner resources and pedagogical conditions. Logical thinking provides operations for analysing, comparing, classifying, relating, and inferring; critical thinking extends these operations through evaluation, justification, consideration of alternatives, and self-regulation. These capacities can be cultivated when teachers make reasoning visible and provide repeated opportunities to explain, compare, check, revise, and transfer strategies.

Four psychological resources emerge from the synthesis: motivation and curiosity, prior knowledge and executive functions, metacognition and self-regulation, and emotional readiness for intellectual risk. Five pedagogical conditions complement them: contingent scaffolding, dialogic interaction, guided problem and inquiry tasks, an error-tolerant classroom climate, and formative assessment and feedback. Their interaction is mediated by calibrated challenge within the zone of proximal development, productive cognitive conflict, verbalised reasoning, explicit attention to transfer, and gradual transfer of responsibility.

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DEVELOPING THE CREATIVE POTENTIAL OF PRIMARY SCHOOL PUPILS: THEORETICAL APPROACHES, INTERNATIONAL EVIDENCE, AND A METHODOLOGICAL MODEL

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ABSTRACT

This article examines the development of primary school pupils' creative potential through an integrative analysis of major theories of creativity, recent systematic reviews in primary education, and the OECD PISA 2022 creative thinking framework. Eighteen scholarly and official sources published between 1950 and 2024 were purposively selected using explicit relevance and quality criteria. The analysis integrates the novelty–appropriateness conception of creativity, indicators of divergent thinking, classroom-context factors, task characteristics, and information-processing processes. On this basis, an integrative methodological sequence is proposed for primary education: understanding information; selecting and reorganising it; identifying a problem; generating alternatives; selecting an original and appropriate idea; justifying it; and evaluating and improving it. A grade-sensitive matrix for Grades 1–4 is also proposed to support progression from simple idea generation to perspective shifting, justification, and refinement. PISA 2022 findings are treated as a system-level signal rather than as direct evidence about primary pupils. The framework remains conceptual and requires classroom validation, but it provides a theoretically grounded basis for designing creative tasks and formative assessment in primary education.

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Keywords: *primary education, creativity, creative potential, creative thinking, divergent thinking, open-ended tasks, information processing, PISA 2022, methodological model.*

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Introduction

In twenty-first-century education, remembering information or reproducing a ready-made algorithm is no longer a sufficient learning outcome. In complex and rapidly changing social and information environments, pupils need to identify problems, generate possible solutions, justify ideas, and revise them when necessary. Creative thinking should therefore be treated not as optional enrichment in primary education but as a competence closely connected with subject learning, language development, problem solving, and independent decision-making. The Concept for the Development of the Public Education System of the Republic of Uzbekistan until 2030 similarly identifies the development of modern competencies and the improvement of educational content and assessment as strategic priorities (President of the Republic of Uzbekistan, 2019).

Although creativity has been conceptualised in different ways, contemporary definitions commonly converge on two criteria: an idea or product should be novel and appropriate to the requirements of the situation. Guilford (1950) helped establish creative thinking as a distinct field of psychological inquiry by drawing attention to divergent production, while Runco and Jaeger (2012) later described novelty and

effectiveness as the two standard criteria of creativity. Sternberg and Lubart (1999) likewise characterise a creative product as both original and appropriate. This distinction matters in primary education because an unusual pupil response is not automatically creative; it should also be meaningful, intelligible, and relevant to the task.

Creative potential should not be interpreted solely as an innate capacity. Amabile (1996) and Hennessey and Amabile (2010) show that knowledge, motivation, the social environment, and task conditions jointly shape creative activity. Vygotsky (2004) argues that imagination in childhood develops through novel recombinations of elements from prior experience. Kaufman and Beghetto's (2009) Four-C model similarly identifies personally meaningful construction in learning as 'mini-c' creativity, showing that everyday school creativity need not resemble major inventions or works of art. The practical implication is that primary education should provide every pupil with opportunities to construct meaning, propose alternatives, explain ideas, and improve them.

International assessment data further underline the relevance of the issue for Uzbekistan. PISA 2022 assessed creative thinking in 64 countries and economies and conceptualised the competence in terms of generating, evaluating, and improving ideas (OECD, 2023, 2024a). The Uzbekistan country note reports that 16% of 15-year-old students reached at least Level 3 in creative thinking, compared with an OECD average of 78% (OECD, 2024b). These figures should not be transferred directly to primary pupils because PISA assesses 15-year-olds. Nevertheless, they may reasonably be interpreted as a system-level indicator of the need to address creative thinking systematically from the early years of schooling.

Accordingly, this article synthesises theoretical and empirical evidence on the development of creative potential in primary education, identifies methodological criteria for designing creative tasks, and proposes an integrative model linking creativity with information processing. Three questions guide the analysis: Which components of creative thinking are methodologically most important for primary education? Which task characteristics are most likely to support creative activity? How can creative tasks be organised progressively across Grades 1–4 in accordance with increasing cognitive complexity?

Theoretical Foundations

Creativity and divergent thinking should not be treated as synonymous. Divergent thinking refers to the capacity to generate multiple, varied, or unusual responses to a problem; although it is an important indicator of creative potential, it does not guarantee a creative outcome (Runco & Acar, 2012). Torrance (1966) operationalised dimensions such as fluency, flexibility, originality, and elaboration. In primary education, these dimensions can be observed by asking how many ideas a pupil generates, whether those ideas represent different categories, whether a response is unusual, and whether an idea can be developed through meaningful detail. Final judgement should also consider appropriateness to the task.

The classroom environment strongly influences whether creative potential is expressed. Beghetto and Kaufman (2014) show that teachers' responses to error, the degree of choice afforded to pupils, psychological safety, and openness to diverse answers can support or suppress creative possibility. Amabile (1996) likewise emphasises intrinsic motivation and interest in the task. A 'creative task' therefore should not be equated with an attractive picture, a fairy tale, or a dramatisation activity. If pupils have no meaningful choice, only one predetermined answer is accepted, or every idea is immediately closed down through a binary 'right–wrong' judgement, the creative potential of the task remains limited.

OECD work on fostering creativity and critical thinking in schools recommends integrating creativity across subject areas rather than treating it as a separate discipline (Lucas et al., 2013; Vincent-Lancrin et al., 2019). The PISA 2022 framework requires students to generate ideas, generate diverse and original ideas, and evaluate and improve ideas (OECD, 2023). These processes can be adapted to primary education through texts, images, everyday situations, natural phenomena, or simple problems. Inventing an alternative story ending, for example, is not merely an exercise in fantasy: the pupil must understand

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the text, identify causal relationships, generate an alternative, align it with the narrative, and explain the choice.

Recent systematic evidence also highlights the importance of task characteristics. Potters et al. (2023) reviewed 52 studies across two decades of research on creativity development in primary education and identified task openness and the integration of activities as important analytical dimensions. Ruiz-del-Pino et al. (2022) synthesised methodologically strong studies of creativity programmes in primary education and found a moderate overall positive effect on creativity or divergent thinking. Together, these findings support the view that creativity can be developed, while indicating that effectiveness depends on the cognitive structure of a task, teacher support, and assessment rather than on the label 'creative'.

In this article, creative potential is therefore defined as a broad personal and pedagogical capacity, whereas creative thinking is its cognitive manifestation in a particular situation through the generation, selection, justification, and refinement of ideas. Divergent thinking is treated as the component that expands the range of possible ideas. A creative product is a response, text, question, solution, image, or other outcome that meets the criteria of novelty and appropriateness to some degree. These distinctions provide the conceptual basis for the proposed model.

Table 1

Review of Research by Scholars from CIS Countries

Scholar	Country	Research focus	Work or approach	Main idea/contribution
M. R. Rahimova	Uzbekistan	Competence development through a creative approach in primary mother-tongue and reading lessons	"Ways of Developing Creative Thinking in Mother-Tongue and Reading Literacy Lessons"	Developing critical and divergent thinking through problem questions and creative tasks.
Z. R. Jalolova	Uzbekistan	Unlocking primary pupils' creative potential through a competence-based approach	"A Creative Approach to Teaching Reading Literacy in Primary Education"	Integration of analytical reading and thinking.
M. To'xtaxonova	Uzbekistan	Methods for developing creative thinking in primary education	Not specified	Enhancing creativity through text work, question-and-answer activities, and creative writing in mother-tongue lessons.
D. Madraximova	Uzbekistan	Developing pupils' creativity through expressive and written language	"Developing Creative Thinking in Primary School Pupils"	Not specified
O. M. Dyakonova	Russia	Methodology of mother-tongue teaching	Rewriting, analysis, and creative story composition based on literary texts	Creative work with texts as a method for developing reading competence.
E. V. Bukanova	Russia	Developing creativity through text work in primary education	Visual imagery, expressive tasks, metaphor, and fantasy exercises	Developing creativity in primary school through systematic work with texts.
T. V. Kudryatsev	Russia	Developing creative thinking in preschool and primary education	"Creativity and Development"	Creative engagement with learning materials is presented as a key factor in a child's personal development.

Note. The table provides a contextual overview of selected CIS scholarship relevant to creative thinking in primary education. It is supplementary to the 18-source integrative review described in the methodology.

Research Methodology

The study was designed as a theoretical-analytical integrative literature review combined with conceptual synthesis. It does not claim to analyse an empirical corpus of textbooks. Its purpose is to organise existing scholarly evidence from the perspective of primary education methodology and to develop an explicit model for subsequent empirical testing. Accordingly, the task examples presented

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below are treated as methodological illustrations rather than as verbatim quotations from a verified textbook corpus. The paper also includes a contextual review table, a grade-level task bank, and two conceptual figures to support the methodological synthesis.

Four criteria guided source selection: direct relevance to the definition or measurement of creativity or creative thinking; evidence concerning creativity in school or primary education contexts; publication as an established scholarly work, peer-reviewed article, systematic review, meta-analysis, or official international document; and discussion of task design, classroom conditions, or assessment criteria that can be meaningfully transferred to primary education. On this basis, 18 scholarly and official sources published between 1950 and 2024 were selected. They include foundational theoretical works, research on classroom contexts, recent systematic reviews, OECD documents on school creativity and PISA 2022, and an official policy document concerning education in Uzbekistan.

The analysis proceeded in three stages. First, core constructs were coded across the selected sources: novelty, appropriateness or effectiveness, fluency, flexibility, originality, elaboration, and the evaluation and improvement of ideas. Second, factors relevant to school settings were extracted, including open-endedness, pupil choice, the availability of an information source, multiple possible answers, perspective shifting, justification, revision, and psychological safety for exchanging ideas. Third, these elements were integrated with the sequence through which primary pupils process information, producing a grade-sensitive matrix of increasing cognitive complexity and an accompanying conceptual model.

This review is not a full systematic review conducted according to PRISMA requirements, nor does it include a new meta-analysis. It therefore makes no claim to cover all available research. Its contribution lies in synthesising distinct theoretical and empirical strands into a testable methodological construct for primary education. The proposed model should subsequently be examined through classroom observation, task content analysis, expert evaluation, and experimental or quasi-experimental comparison of pupil outcomes.

Results

Three main results emerged from the synthesis. First, an ‘open response’ criterion alone is insufficient for identifying a genuinely creative task in primary education. A methodologically strong task should create at least three opportunities: the pupil selects among alternatives or generates alternatives; develops a selected idea into a meaningful form; and justifies it with evidence, reasons, or contextual information. At a higher level, the pupil also revisits and improves the idea. The core pedagogical mechanism can therefore be represented as ‘select – create – justify – refine’.

Second, creativity is inseparable from information processing. A primary pupil does not create a new story ending, question, or alternative solution ‘from nothing’. The pupil first receives information from a text, image, observation, or problem, identifies important elements, reorganises them, and uses them in a new combination. Vygotsky’s (2004) account of imagination as the recombination of elements from experience, together with the PISA framework, supports an understanding of creativity as active work with both content and ideas. The integration of creativity and information processing therefore represents a promising methodological direction for primary education.

Third, cognitive complexity should increase progressively across grades. In Grade 1, pupils can generate several simple ideas from a familiar word, image, or situation and express one coherently. Grade 2 can place greater emphasis on linking elements, continuing an event, or relating text and image. In Grade 3, pupils can practise perspective shifting, transformation of a character trait, and explanation of a choice. Grade 4 can prioritise viewing a problem from several perspectives, generating questions, comparing alternatives, and improving an idea. Table 2 presents illustrative grade-level tasks aligned with this progression, while Table 3 presents the analytical matrix derived from the synthesis.

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Table 2

Creative Tasks for Developing Information-Processing Competence in Grades 1–4

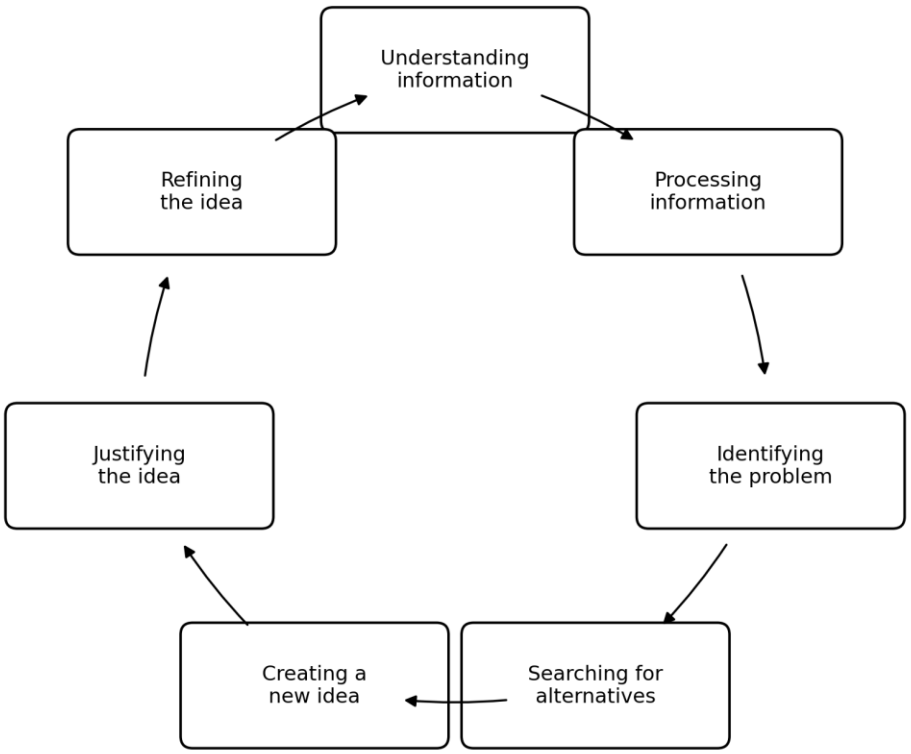
Grade	Task type(s)	Task instructions
Grade 1	1. “Story from a Word” 2. “Change the Ending of a Fairy Tale” 3. “Compose a Poem”	1. Use the word “bird” to write a short story of 3–4 sentences. 2. “The Wolf and the Goat”: If the goat escaped from the wolf, how might the fairy tale end? Write your own version. 3. Using the words joy, school, and book, write a four-line poem.
Grade 2	1. “From Word to Picture, from Picture to Text” 2. “Continue the Fairy Tale” 3. “From Sentence to Picture, from Picture to Story” 4. “Create a Script”	1. How would you represent the word “friendship” in a picture? Draw it and write 2–3 sentences explaining its meaning. 2. “Once upon a time, there was a little mouse …” Continue the fairy tale and bring it to your own ending in 4–5 sentences. Add new events. 3. Read the sentence “The children are reading a book under a tree in the garden.” Draw the scene and create a short story based on your picture. 4. Create a short scene with 2–3 roles on the theme “A Book Is a Source of Knowledge” (for example, Book, Child, and Ignorance).
Grade 3	1. “Give the Text a New Title” 2. “Change the Character”	1. Read a short text prepared by the teacher. Give it a new title, explain your choice, and state the main idea of the text. 2. Choose a familiar fairy-tale character (for example, Zumrad, the Wolf, or Little Red Riding Hood) and change one aspect of the character. What would happen if the Wolf were kind? What would happen if Little Red Riding Hood had bad intentions? Explain how the story would change.
Grade 4	1. “One Event, Two Perspectives” 2. “Treasury of Ideas” 3. “A New Event Based on a Text” 4. “Creative Question-and-Answer”	1. Write the event “A child lost a friend’s book” from two perspectives: the child’s and the friend’s. What might each person think about the event? 2. Continue the statement “If I were the school headteacher for one day, I would …” in 6–7 sentences. 3. Choose an event from a text read in class and write a new continuation. For example: What would happen if the “Golden Fish” appeared again? 4. Create questions that would appropriately produce the following answers: “Because they loved books”; “Because the sun was setting”; “Because friendship is the most important thing.” The questions should be creative and supported by reasoned explanation.

Note. The tasks are illustrative methodological examples rather than verbatim quotations from a verified textbook corpus.

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Figure 1

Sequence of Creative Activity in Primary Education



Note. The sequence illustrates progression from understanding and processing information to identifying a problem, generating alternatives, creating and justifying a new idea, and refining it.

Figure 1 presents the seven-stage sequence underpinning the synthesis. Figure 2 extends this logic by making explicit the selection of an original and appropriate idea, together with evaluation and improvement.

Table 3

Methodological Matrix for the Progressive Development of Creative Tasks in Grades 1–4

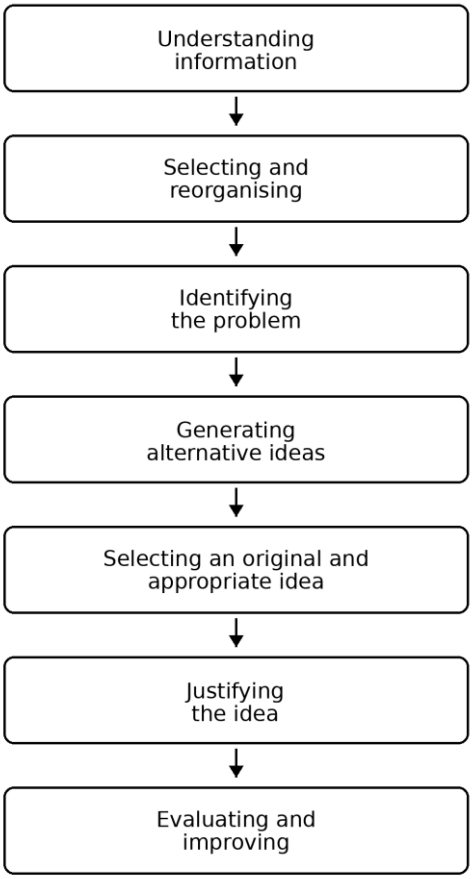
Grade	Priority cognitive objective	Illustrative example task	Primary assessment indicator
Grade 1	Fluent idea generation and simple connections	Using the word ‘bird’ and an accompanying picture, invent two different short events; write one of them in 3–4 sentences.	Number of ideas, relevance to content, simple originality
Grade 2	Connecting elements and transformation	Create two different beginnings for a story that fit the given picture, then continue one of them.	Flexibility, logical connection, detail
Grade 3	Perspective shifting and justification	Change one characteristic of a familiar fairy-tale character and explain how the story would change as a result.	Originality, causal explanation, task relevance
Grade 4	Multiple perspectives, evaluation, and refinement	Write one situation from the perspectives of two characters; choose the stronger version and improve it using peer feedback.	Diversity, justification, quality of selection, refinement

Note. The matrix operationalises the theoretical and empirical synthesis presented in this study.

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Figure 2

Integrative Methodological Model of Creative Thinking and Information Processing in Primary Education



Note. Conceptual synthesis based on OECD (2023), Runco and Jaeger (2012), and Vygotsky (2004).

Discussion

The proposed model avoids reducing creativity to 'free imagination'. The dual criterion of novelty and appropriateness emphasised by Runco and Jaeger (2012) is equally relevant to school tasks: a pupil's idea may be unusual, but if it has no meaningful connection with the given text, situation, or problem, the intended learning objective is not achieved. Assessment should therefore move beyond 'Is it original?' and also ask whether the idea is appropriate, explained, connected to evidence, and capable of improvement.

This distinction also clarifies the role of divergent thinking. Fluency and flexibility help pupils generate more numerous and varied alternatives, but convergent evaluation is needed to select an idea that is fit for purpose. The PISA 2022 framework reflects this balance by distinguishing the generation of ideas from their evaluation and improvement (OECD, 2023). Teachers should therefore avoid the assumption that more answers automatically indicate greater creativity and should attend to quality, relevance, and justification.

Classroom context remains crucial. Even a well-designed open-ended task may fail if pupils fear ridicule for an unusual response or expect immediate negative judgement. Beghetto and Kaufman (2014) emphasise the sensitivity of creative potential to classroom context, while Amabile (1996) shows that excessive external control and reward-focused motivation can constrain creativity under some conditions. Primary teachers should listen to an idea before judging it, invite further alternatives, allow pupils to extend one another's ideas, and treat error as a normal part of thinking.

The PISA 2022 findings make the issue particularly salient in Uzbekistan. The relatively low proportion of 15-year-olds reaching Level 3 compared with the OECD average suggests that creative

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thinking should not be addressed only through short-term preparation in later schooling (OECD, 2024b). At the same time, the result does not demonstrate the ineffectiveness of any particular primary textbook, teacher, or method. A system-level indicator should be used to justify sustained methodological work rather than to infer causality.

The task characteristics identified by Potters et al. (2023) are compatible with the grade-sensitive matrix proposed here: open and integrative tasks can connect multiple forms of knowledge and activity. Nevertheless, 'open' does not automatically mean cognitively demanding. 'Draw anything you like' offers freedom but may require little information processing or justification. By contrast, 'Change the character's decision and explain, using three reasons, how the change would affect the ending' combines transformation, causal reasoning, and justification. Methodological quality therefore depends on the number and interrelation of the cognitive operations required.

A further implication concerns the distinction between task demand and pupil performance. A task may create an opportunity for creative thinking without guaranteeing that every pupil will use that opportunity. Conversely, a relatively constrained task may still elicit an original response from a particular pupil. For methodological purposes, task quality should therefore be described in terms of the cognitive opportunities it affords, while pupil creativity should be evaluated through observable responses to those opportunities. This distinction is important when comparing textbooks, lessons, or interventions because it prevents task design from being treated as direct evidence of learning outcomes. It also supports cautious use of international frameworks: originality, appropriateness, and refinement can guide task design, but their classroom expression will depend on language, subject matter, prior knowledge, and culturally shaped expectations about acceptable responses.

The article makes two related conceptual contributions. First, components of creative thinking are integrated with understanding and reorganising information within a single sequential model. Second, a matrix is proposed for increasing task complexity across Grades 1–4. The matrix is a conceptual proposal derived from theoretical and empirical literature and requires expert review and classroom testing.

Practical Methodological Recommendations

Several practical implications follow. First, every creative task should have a meaningful content base, such as a text, image, observation, object, simple data set, or real-life situation. The base should provide sufficient information for developing a new idea without directing pupils towards a single predetermined answer. Second, a task should permit more than one reasoned response. This does not imply that all answers are equally acceptable; rather, several answers may satisfy the task when they are relevant and adequately justified.

Third, assessment can be organised around four indicators: diversity, originality, appropriateness, and justification. In the upper primary grades, refinement can be added as a fifth indicator. A Grade 4 pupil, for example, may revisit an initial idea after peer feedback and briefly explain what was changed and why. This provides an age-appropriate form of the evaluation and improvement processes emphasised in the PISA framework.

Fourth, creative tasks should extend beyond language and reading literacy. In mathematics, pupils can solve the same problem in two ways and explain when each method is useful; in science, they can generate several hypotheses for an observed phenomenon; in technology or visual arts, they can devise different functional solutions using available materials. Vincent-Lancrin et al. (2019) similarly support creativity across subject areas.

Finally, teachers' questions should progress from reproductive to transformative prompts. 'What happened in the text?' supports comprehension, but it can be followed by 'What would happen if one condition changed?', 'Which two solutions could be combined?', or 'How could you improve your answer?'. Textbook and methodological-guide authors should likewise plan creative tasks according to cognitive progression rather than distribute them randomly across grades. The proposed progression is a

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methodological direction rather than a rigid age norm and should be adapted to class readiness and individual differences.

Formative Assessment of Creative Thinking

The development of creative thinking is unlikely to be sustained without appropriate formative assessment. In conventional tasks, teachers often focus on whether the final answer is correct; in creative tasks, both process and product should be observed. Lucas et al. (2013) argue that formative approaches capable of making progression visible are important for developing creativity in school. The purpose of assessment should therefore be to identify the creative operation being developed and provide feedback that supports the next step, rather than to rank pupils rigidly against one another.

Four criteria are particularly useful. Diversity concerns whether a pupil can produce meaningfully different alternatives rather than repeat the same idea. Originality concerns the extent to which the response moves beyond simple copying or reproduction of a model. Appropriateness concerns how well the idea meets the conditions of the text, situation, or problem. Justification and development concern whether the pupil can explain a choice and improve it after feedback. These criteria represent a primary-education synthesis of Torrance (1966), Runco and Acar (2012), and OECD (2023). They do not replace standardised testing but provide practical criteria for everyday observation.

The language of feedback also shapes the classroom climate. Rather than closing discussion with ‘wrong’, a teacher might ask, ‘Which part of this idea fits the text?’, ‘What evidence would make it stronger?’, or ‘What would change if we combined it with another option?’. Such questions encourage revision. Feedback should identify a strength and a specific route for improvement rather than offer only general praise.

Age should also be considered. In Grades 1–2, criteria can be expressed through simple oral self-check questions such as ‘Did I give two different ideas?’ and ‘Does my idea fit the picture or text?’. In Grades 3–4, self-assessment and peer dialogue can be strengthened. A partner might identify the most original part of an initial response and one aspect to improve, after which the pupil produces a second version. Explicit task-related indicators also reduce the risk that a teacher’s personal taste becomes the assessment standard.

Limitations of the Study

The study has three main limitations. First, it is based on an integrative literature analysis rather than an empirical textbook corpus or classroom intervention; the effectiveness of the proposed matrix and model in Uzbek primary schools therefore remains a theoretically grounded hypothesis. Second, source selection was purposive rather than based on a complete systematic search protocol and PRISMA flow diagram. Third, international models of creativity may not manifest identically across cultural and disciplinary contexts.

Future research should identify a defined corpus of Uzbek Grade 1–4 textbooks, catalogue open-ended and semi-open tasks, and code them independently for fluency, flexibility, originality, justification, and refinement. Inter-rater agreement should be calculated. Selected tasks could then be tested in experimental and control groups to examine changes in pupils’ creative thinking. Such work would turn the present conceptual model into an empirical research programme.

Conclusion

Developing creative potential in primary education cannot be reduced to occasional ‘interesting’ activities. Creative thinking is a complex cognitive process in which pupils understand information, identify relevant elements, reinterpret a problem, generate alternatives, select an original and appropriate option, justify it, and refine it. The literature indicates that creativity can be developed, but its development depends on the interaction of task characteristics, classroom climate, teacher support, and assessment.

The integrative model proposed in this article links creativity with information processing and envisages a gradual increase in task complexity across Grades 1–4, from simple idea generation to

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perspective shifting, justification, and refinement. Its central principle is that pupils should not merely find an answer but generate alternatives; not merely generate alternatives but justify them; and not merely justify them but, where necessary, revise and improve them. The priority for primary education is therefore not simply to increase the number of open-ended tasks, but to improve their cognitive quality. The proposed model and matrix should now be tested empirically in Uzbekistan and refined across age groups, subject areas, and assessment contexts.

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DEVELOPMENT OF A MULTICRITERIA DIAGNOSTIC INSTRUMENT FOR EVALUATING THE QUALITY OF TEACHING RADIATION SAFETY TOPICS BASED ON PROBLEM-BASED LEARNING

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ABSTRACT

This study developed a multicriteria diagnostic questionnaire for evaluating problem-based teaching of radiation safety topics in higher medical education, using dosimetry as the instructional context. The instrument provides a multidimensional assessment of student learning beyond conventional grade-based indicators. It includes five criteria—cognitive, motivation, readiness, practice orientation, and methodological competence—represented by 31 items. Cognitive performance is assessed through multiple-choice items, whereas the remaining criteria use a five-point Likert scale. Content validity was evaluated by five experts in pedagogy and medicine, and internal consistency was considered using Cronbach's alpha. The instrument was piloted at Samarkand State Medical University during instruction on "The Importance of Dosimetry in Medicine." Participants comprised a control group taught using a traditional method (n = 25) and an experimental group taught through problem-based learning (n = 26). Across all five criteria, the experimental group achieved higher results, with an average difference of 15.8 percentage points. The consistent criterion-level separation supports the argument that multidimensional assessment can reveal differences in motivation, readiness, practical application, and methodological competence that may be obscured by a single aggregate grade, strengthening the instrument's practical value for evaluating pedagogical approaches in higher medical education.

ACCEPTED

07.09.26

Keywords: *diagnostic tool, questionnaire, system of criteria and indicators, problem-based learning, radiation safety, dosimetry, reliability, higher medical education, testing.*

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Introduction

In pedagogical research, evaluating teaching quality only through an average score or the proportion of high grades is convenient but conceptually narrow. Such indicators summarize performance, yet they do not show whether students are motivated to use what they know, ready to act in non-standard situations, able to transfer knowledge to practice, or capable of regulating their own learning. This limitation is especially important in radiation safety, where competent medical practice depends not only on recalling dose units and protection rules but also on applying them appropriately in clinical decisions. International guidance explicitly emphasizes theoretical and practical radiation-protection education for medical professionals, while consensus work has identified radiation-protection competencies that medical students should possess at graduation (European Commission, Directorate-General for Energy, 2014;

Singh et al., 2008). Therefore, a diagnostic instrument for this field should measure several educational dimensions rather than reduce teaching quality to a single grade. This position is consistent with contemporary testing standards and scale-development guidance, which emphasize that score interpretations should be supported by evidence relevant to the intended constructs and uses (American Educational Research Association et al., 2014; Boateng et al., 2018; DeVellis, 2017).

The purpose of this study is to develop a multicriteria diagnostic questionnaire instrument that enables a comprehensive assessment of the quality of teaching radiation safety, specifically dosimetry, in higher medical education using problem-based learning (PBL); to present the theoretical basis for its five criteria; and to examine its practical sensitivity through a pedagogical pilot conducted at Samarkand State Medical University. The central argument is that a multidimensional instrument can provide more educationally actionable information than a single aggregate score because it shows not only whether groups differ, but also in which dimensions those differences are most pronounced.

Theoretical Foundations

The instrument's criteria are based on the following theoretical foundations:

The cognitive criterion is based on Bloom's taxonomy of educational objectives: this criterion measures how well a student has mastered theoretical knowledge of dosimetry—units, instruments, principles, and standards (Bloom, 1956).

The motivation criterion is based on Deci and Ryan's self-determination theory: according to this theory, a person's intrinsic interest and the value they attach to a subject determine their learning engagement, so this criterion assesses the student's interest in the topic and their awareness of its professional significance (Deci & Ryan, 1985).

The readiness criterion measures the student's inner confidence in applying acquired knowledge to practical situations—calculating radiation dose and making decisions in non-standard situations—and represents one of the primary goals of problem-based learning technology (Trullàs et al., 2022).

The practice-orientation criterion reflects the student's ability to connect theoretical knowledge with real clinical situations and to make evidence-based decisions.

The methodological competence criterion assesses the student's ability to manage their own learning activity—planning, reflection, analyzing sources, and explaining material to others—a skill essential for independent, lifelong learning in the future.

The overall methodology for designing the questionnaire structure and measurement instruments was organized in accordance with DeVellis's scale development theory (DeVellis, 2017).

Research Methodology

The research topic—"The Importance of Dosimetry in Medicine"—is a core component of preparation for clinical fields such as radiology, radiation therapy, and nuclear medicine. It includes knowledge and skills related to ionizing-radiation dose, dosimetric instruments, and protection of patients and medical personnel. Radiation-protection guidance emphasizes that medical education should include both theoretical knowledge and practical competence, and prior consensus research has identified a broad set of radiation-protection competencies relevant to graduating medical students (European Commission, Directorate-General for Energy, 2014; Singh et al., 2008). The technical and applied nature of dosimetry therefore makes it particularly suitable for teaching approaches that require students to connect concepts with realistic decisions rather than rely on verbal explanation alone.

For this reason, the study applied problem-based learning (PBL). Students were presented with realistic dosimetry problems—for example, calculating a patient's radiation dose or analyzing a case in which a radiation-safety rule had been violated—and worked in small groups to identify what they knew, determine what additional information was needed, and justify a solution before collective discussion and conclusion. This choice is theoretically and empirically grounded. PBL can activate prior knowledge, promote elaboration, stimulate situational interest, and organize learning around meaningful problems

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(Schmidt et al., 2011). Meta-analytic and systematic-review evidence indicates that PBL is particularly relevant to application, skills, and competency-oriented outcomes, even when effects on factual knowledge are more variable (Dochy et al., 2003; Koh et al., 2008; Trullàs et al., 2022). Accordingly, an evaluation of PBL in radiation safety should assess more than knowledge alone; it should also examine motivation, readiness, practical application, and methodological competence.

The diagnostic instrument was designed with five criteria: cognitive (5 items), motivation (4 items), readiness (7 items), practice orientation (8 items), and methodological competence (7 items)—31 items in total. The cognitive criterion is assessed through multiple-choice test items (with a single correct answer), while the remaining four criteria are assessed using a 5-point Likert scale ("fully agree"—4 points, to "fully disagree"—0 points). Each item is worth 3.23 points, so the overall maximum score is 100. Based on the score obtained, four levels (high, medium, low, lowest) are defined for each criterion and for the overall result; these level zones and the groups' positions relative to them are presented in Figure 1.

The content of the instrument was reviewed by five experts in pedagogy and medicine as an initial source of content-validity evidence. This step is consistent with established scale-development practice, in which expert review is used to examine whether items adequately represent the intended constructs (Boateng et al., 2018; DeVellis, 2017). Internal consistency was considered using Cronbach's alpha (Cronbach, 1951). In accordance with contemporary testing standards, these forms of evidence should be viewed as part of an ongoing validation process rather than as a single definitive test of validity (American Educational Research Association et al., 2014). The pilot results indicated a satisfactory level of reliability; future studies should report the numerical reliability coefficient and extend validation using larger samples and additional evidence of dimensional structure and score interpretation.

To pilot the instrument, a pedagogical experiment was conducted at Samarkand State Medical University during the teaching of the topic "The Importance of Dosimetry in Medicine." The study involved a control group (25 students, taught the topic using the traditional method) and an experimental group (26 students, taught the topic based on problem-based learning technology). The questionnaire was administered individually to both groups at the end of the lesson.

Research Results and Analysis

Based on the questionnaire results, the average scores and percentage indicators of the control and experimental groups across the criteria are presented in Table 1.

Table 1

Diagnostic Results of the Control and Experimental Groups by Criterion

Criterion	Control (n = 25), points	Control, %	Experimental (n = 26), points	Experimental, %	Difference, p.p.
Cognitive	11.8	73.3	14.3	88.8	15.5
Motivation	9.6	74.4	11.8	91.5	17.1
Readiness	16.9	74.8	20.5	90.7	15.9
Practice orientation	19.2	74.4	23.4	90.7	16.3
Methodological competence	16.5	73.0	19.8	87.6	14.6
Overall score (out of 100)	**74.0**	**74.0**	**89.8**	**89.8**	**15.8**

Note. p.p. = percentage points.

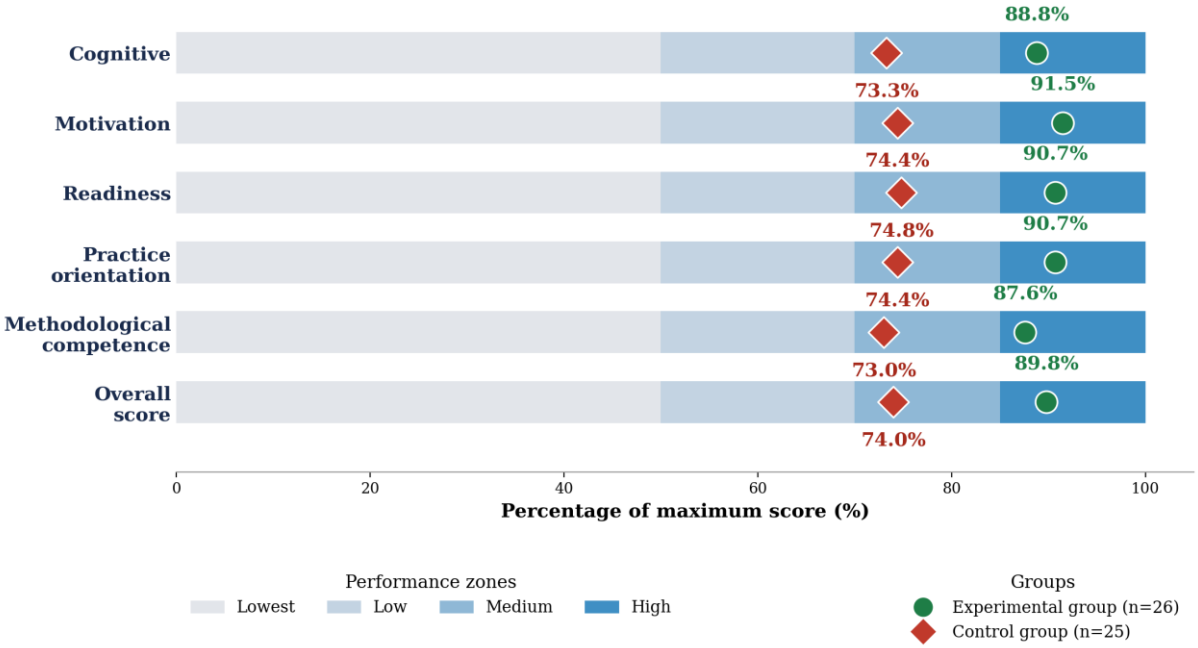
The table data show that the experimental group's results across all five criteria fall into the "high level" (close to the 86.0–90.0-point range), while the control group's results fall into the "medium level" (71.0–85.0 points). The difference in the overall score amounted to 15.8 percentage points.

Figure 1 shows, in a single combined view, the four level zones defined for each criterion (lowest, low, medium, high) as the background, with the average results of the control and experimental groups shown as markers.

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Figure 1

Performance Zones by Criterion and Comparative Average Results of the Groups



The figure shows that all of the control group's indicators lie within the "medium level" zone, while the experimental group's indicators lie within the "high level" zone across all criteria. This confirms the instrument's ability to clearly and visually demonstrate the difference between the groups.

Figure 2 presents the comparative indicators of both groups across the five criteria.

Figure 2

Comparative Indicators of the Control and Experimental Groups Across Five Criteria

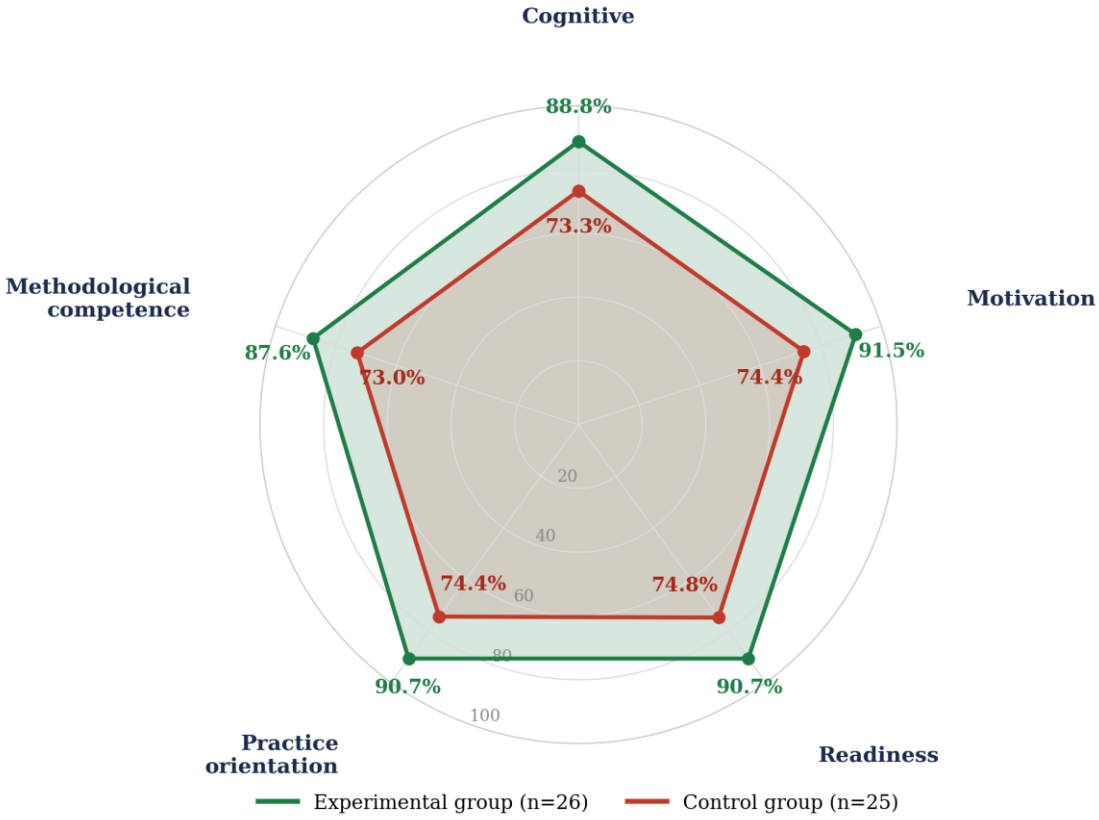


Figure 2 shows that the experimental group's line lies outside the control group's line for every criterion. The largest difference was recorded for the motivation (17.1%) and practice-orientation (16.3%)

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criteria, and the smallest for the methodological competence criterion (14.6%). This demonstrates that the instrument has discriminant power across different criteria—that is, it can distinguish not just an overall score but also which aspects of the teaching technology it affects more strongly.

Discussion

The central argument of this study is that teaching quality in radiation safety is not adequately represented by a single final grade. Safe practice requires a combination of knowledge, motivation to apply protection principles, readiness to respond to non-standard situations, translation of theory into clinical decisions, and the capacity for independent learning. This multidimensional view is consistent with competency-oriented radiation-protection guidance and with consensus work on what graduating medical students should know and be able to do (European Commission, Directorate-General for Energy, 2014; Singh et al., 2008). From a measurement perspective, it also aligns with the principle that an assessment should provide evidence relevant to the distinct constructs it is intended to represent rather than collapse them into one undifferentiated outcome (American Educational Research Association et al., 2014; Boateng et al., 2018).

The observed criterion-level separation provides a practical argument for the usefulness of the instrument. PBL is designed to engage learners with authentic problems, activate prior knowledge, and require elaboration and collaborative reasoning (Schmidt et al., 2011). Broader evidence from meta-analysis and systematic review suggests that PBL can be especially beneficial for applied, skills-based, and professional competency outcomes (Dochy et al., 2003; Koh et al., 2008; Trullàs et al., 2022). In the present pilot, the largest descriptive differences occurred in motivation and practice orientation, which is theoretically coherent with a learning approach built around meaningful clinical problems and active decision-making. The value of the multicriteria instrument is therefore not merely that it produces a higher or lower total score; it makes visible which dimensions of learning show the greatest separation between instructional conditions, information that an aggregate grade may conceal.

At the same time, the findings should be interpreted as preliminary evidence of practical sensitivity rather than definitive proof of construct validity or causal superiority. The pilot included a small sample and relied on descriptive comparisons between groups, and the manuscript does not report the numerical Cronbach's alpha coefficient or inferential tests of group differences. Future validation should report reliability coefficients, quantify and document content-validity evidence, examine the instrument's dimensional structure, and test score interpretations in larger independent samples (American Educational Research Association et al., 2014; Boateng et al., 2018). Stating these limits strengthens rather than weakens the study's argument: the present results show why a multicriteria approach is educationally informative, while further psychometric work can establish how consistently and generalizably the instrument performs.

Conclusion

The five-criteria diagnostic questionnaire—cognitive, motivation, readiness, practice orientation, and methodological competence—offers a more informative framework for evaluating radiation-safety teaching than a single grade-based quality indicator. In this pilot, the experimental group taught through PBL scored higher than the control group across every criterion, with an average descriptive difference of 15.8 percentage points. The consistency of the criterion-level pattern, together with broader evidence that PBL supports applied and competency-oriented learning, strengthens the case for using multidimensional assessment when evaluating pedagogical approaches in higher medical education (Dochy et al., 2003; Koh et al., 2008; Trullàs et al., 2022). These results support the instrument's practical utility and justify larger validation studies. Before broad generalization, future research should confirm reliability, dimensional structure, content validity, and criterion-related evidence in larger and independent samples.

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DIGITAL CULTURAL HERITAGE AS A RESOURCE FOR EDUCATION, INNOVATION AND SUSTAINABLE DEVELOPMENT

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ABSTRACT

Digitalisation provides significantly more opportunities to preserve, access and share cultural heritage, yet digital access does not by itself create educational, innovative or sustainable value. This article examines the conditions under which digital cultural heritage becomes an active resource for learning, creative use and sustainable development. The study is a conceptual analysis of literature on digital cultural heritage, education and sustainable development, combined with a reevaluation of selected findings from the author's 2016 qualitative research on intercultural communication competence. That earlier work is not treated as empirical evidence about digital heritage; rather, it extends the conceptual lens of knowledge, motivation, skills, openness and experiential learning to contemporary digital heritage practices. The article argues that digital cultural heritage becomes valuable through a process that moves from preservation and access towards contextualisation, engagement, learning, skills development and creative reuse. Examples from Europeana concerning digital heritage education and immersive cultural experiences demonstrate both the opportunities and the limitations of technology-supported learning. The case of Uzbek audiovisual heritage, focusing on the photographic and cinematographic legacy of Khudaibergan Devanov, shows how historically significant archival materials can serve as tools for education, intercultural understanding, research and creative engagement. The article concludes that sustainable value does not come from digitisation itself, but from the interaction of digital infrastructure, cultural context, educational practice, institutional capacity and human creativity.

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Keywords: *creative reuse, cultural heritage education, digital cultural heritage, digitalisation, experiential learning, film heritage, innovation, intercultural learning, sustainable development, Uzbekistan.*

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Introduction

For years societies preserved and transmitted the memory and meaning through material and documentary objects, audiovisual records, practices, knowledge and other forms which represent cultural heritage. Digital solutions have widened the horizon of opportunities for preserving and accessing such heritage, whereas the digitisation should not be understood merely as the production of digital copies. Digital cultural heritage can be further considered as a resource for education, research, creativity, innovation and social development.

The article addresses as a central problem the distinction between access and meaningful value. Meaning a digitised photograph, film or manuscript is not automatically educational simply by being available online. It is necessary for a user to have context, motivation and opportunities to interpret and

engage with the cultural materials. UNESCO's Recommendation on documentary heritage acknowledges documentary materials including digital forms as resources for knowledge creation, intercultural education, scientific and technological progress and development, and appeals for new forms and tools for education and research (UNESCO, 2015).

The paper is built conceptually on the earlier qualitative research on intercultural communication competence conducted by the author in 2016. Even though that research studied international volunteers rather than digital cultural heritage, its findings on the relationship among knowledge, motivation, skills, openness and practical experience lie in direct relevance to this exploration. The study displayed that if participants actively sought information about cultural difference, interpreted it through own experience and applied into practice, the possessed information became more meaningful. These findings serve as a useful conceptual basis to question how digital cultural materials can correspondingly move from information towards learning and action.

Hence the article addresses three following questions:

- ✓ What educational opportunities are created when cultural heritage becomes digitally accessible?
- ✓ How can digital heritage support learning, creative use and innovation?
- ✓ What are the conditions and challenges that define whether digital heritage contributes to sustainable cultural and educational value?

The article consolidates a conceptual literature review and a case-based study of Uzbekistan's audiovisual heritage with a focus on Khudaibergan Devanov. Whereas the 2016 research provides a conceptual resource and is not considered as empirical evidence about digital heritage.

The central argument is that digitalisation created vast possibilities, but its value comes from contextualisation, engagement, learning and reuse. Digital cultural heritage realizes its potential not merely as digitised content, but as an enabling resource for knowledge, creativity and participation.

2. Digital Cultural Heritage as a Meaning-Making and Knowledge Resource

2.1 Culture, Shared Meanings and Cultural Heritage

Communities interpret their past and present through symbols, values, memories and knowledge which altogether represent cultural heritage. This corresponds with the understanding of culture developed in the earlier research of the author. Trenholm and Jensen (2008) describe communication as a symbolic, interpretative, transactional and contextual process through which people create shared meanings, while culture can be understood as a learned system of shared perceptions, beliefs, values and norms.

One of the findings of the 2016 study was also an important qualification that cultural knowledge does not provide a universal explanation for individual behaviour. Samovar et al. (2013) stressed the uniqueness of the individuals and the dangers of generalisation. Hence cultural knowledge can contribute to interpretation, but should not replace the focus on individual circumstances and context.

This differentiation is crucial in context of digital heritage: where a digital representation of cultural life does not have one fixed meaning which can be simply transmitted to the user. Here the meaning is created in a consolidation of historical and cultural context of this object, the information accompanying it, the knowledge perceived and the perspective of the person interpreting it.

2.2 From Digitisation to Meaningful Access

Digitisation can considerably increase accessibility of the documentary heritage, especially materials that are geographically dispersed, fragile or difficult to consult physically. Having mentioned that the access itself does not fully explore the potential of the object, UNESCO's 2015 Recommendation further expands preservation to long-term accessibility and encourages Member States to develop educational and research tools around documentary heritage (UNESCO, 2015).

The contemporary digital heritage environment is outgrowing isolated online repositories and moving towards interoperable data infrastructures. The emphasis is also made by the Common European

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Data Space for Cultural Heritage: Strategy 2025–2030 which identifies high-quality data, interoperability, multilingual discovery, wider access, reuse and emerging technologies such as artificial intelligence, 3D and extended reality as priorities. The funding gaps, institutional capacity and data silos are being recognized as continuing challenges (European Commission & Europeana Foundation, 2025).

Hence we observe an important paradigm shift from digitisation as preservation to digital heritage as meaningful access. Accessibility opens doors to learning but interpretation and engagement define if that possibility gets an educational value.

3. Digital Cultural Heritage as an Educational Resource

3.1 From Access to Learning

Digital collections enable access for learners to archival records that may otherwise have been unavailable due to geographical, institutional or physical limitations. For example, Europeana facilitates access to cultural heritage collections from institutions across Europe and supports educators in blending these materials into teaching and learning.

Nonetheless, the access to information should not be considered equivalent to learning. The separation is consistent with the author's 2016 research, where knowledge, motivation and skills were recognized as interdependent dimensions of intercultural competence. Spitzberg and Cupach's (1984) competence model equally highlights knowledge, motivation and skills as interconnected components of effective intercultural interaction.

This principle can be applied prudently to digital heritage. Meaning the cultural information can become educationally meaningful when the learners can interpret it, connect it with existing knowledge and apply it through activity which can be seen in the example of O'Neill et al. (2024). Their study described the usage of digital cultural heritage assets from the Digital Repository of Ireland in software engineering education. The students actually worked with heritage materials and metadata standards, letting the cultural heritage resources to illustrate the technical concepts in an authentic learning environment. The research shows that digital heritage can function simultaneously as cultural content and a practical learning environment.

The ramification is that the educational value of digital heritage is less related to the quantity of the material available rather to how effectively it is incorporated into learning activities.

3.2 Knowledge, Motivation and Experience

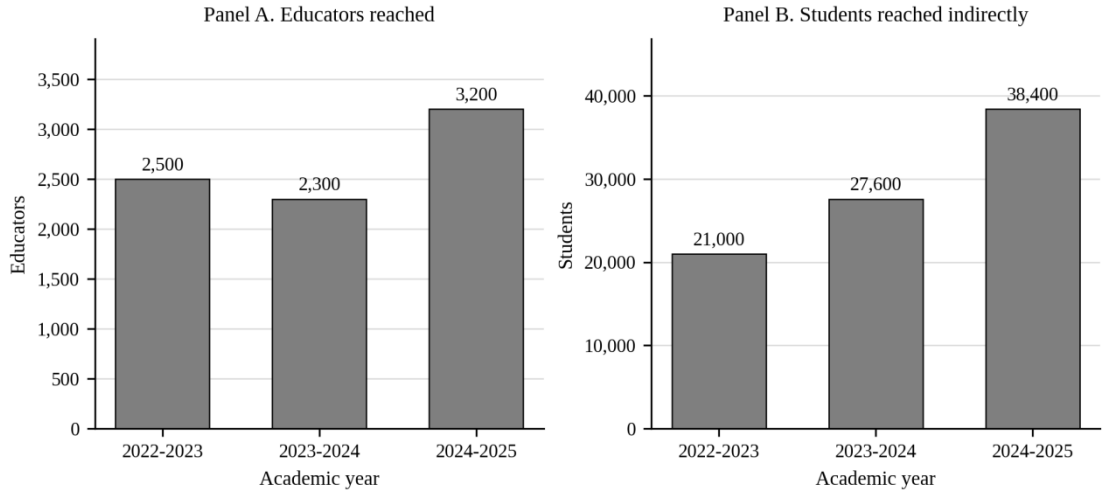
The 2016 study further suggested that formal knowledge became more meaningful when it was connected with practical experience. This observation can be applied to digital heritage education, where learners move between viewing, investigating, interpreting and producing.

This transition towards active reuse can be seen in Europeana's education activities. During the 2023–2024 academic year, more than 2,300 formal and non-formal educators interacted with Europeana resources, which resulted indirectly in reaching more than 27,600 students. The programme emphasized the reuse of digital cultural heritage, learning scenarios and connections between physical and digital environments (Europeana Foundation, 2024). As Figure 1 shows, the reported reach of these activities has grown across three consecutive academic years, with the number of students indirectly reached rising from more than 21,000 in 2022–2023 to more than 38,400 in 2024–2025 (Europeana Foundation, 2023, 2024, 2025). These figures describe participation rather than measured learning gains, yet they indicate that educational reuse of digital heritage is becoming a structural rather than an occasional practice.

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Figure 1

Educators and Students Reached Through Europeana Education Activities, 2022–2023 to 2024–2025



Note. Panel A shows the number of formal and non-formal educators who took part in education activities organised by the Europeana Initiative and European Schoolnet. Panel B shows the number of students reached indirectly through those educators. Figures are reported minimum values ("more than") and are therefore conservative. Data compiled by the author from Europeana Foundation (2023, 2024, 2025).

However it should be mentioned that technology itself should not be considered as a guarantee of better learning. Sun and Ch'ng (2024) compared the results of screening of traditional 2D documentaries in relation to immersive 360° ones where both presented Miao cultural heritage. The results stated that the immersive format increased perceived appeal and engagement without producing superior objective knowledge retention.

The data demonstrates that technological immersion and learning outcomes are related but not identical.

Thus, for digital cultural heritage to be effective, it requires alignment among technology, content, learner experience and pedagogical purpose.

3.3 Openness and Engagement With Cultural Difference

The author's earlier research also distinguished important conditions for learning across cultural differences such as openness, curiosity and willingness to engage. Even though digital cultural heritage can extend outreach of learners to histories and cultural expressions beyond their direct milieu, it does not necessarily ensure the intercultural understanding.

The importance of active engagement can be seen in the recent studies of Zhang et al. (2025) who study VR-based digital cultural heritage education. They identified curiosity, enjoyment, perceived control and immersion as important dimensions of continued engagement. Their findings suggest that interactive environments can encourage users to explore cultural heritage more actively in comparison to passively receiving information.

Comparably, Guo (2025) explored a blending of digital games and synchronous online courses in heritage education of Chinese porcelain. The findings demonstrated that combining experiential digital activities with structured instruction could improve the learning outcomes and motivation of participants. The order of activities played an important role as the exploration could generate questions which afterward were addressed through systematic teaching.

These studies illustrate a wider interpretation of openness emphasizing that digital heritage does not automatically produce openness to cultural difference. On the contrary, it can create conditions for curiosity, exploration and interpretation, where the learner's active engagement is central.

4. From Learning to Innovation and Sustainable Development

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4.1 From Knowledge and Skills to Creative and Innovative Reuse

While previous sections establish the progression from access towards learning, this section discusses what can happen after learning. The author's 2016 research suggested that knowledge, motivation and practical skills could influence subsequent educational and professional activity. Applying this to digital cultural heritage provides a conceptual bridge from learning to creative reuse.

The value of digital cultural heritage can be extended beyond viewing. It can become something users create with, for example, it can be incorporated into research, digital storytelling, educational platforms, documentary production, games, design, virtual exhibitions and immersive experiences.

According to the European Commission and Europeana Foundation's 2025–2030 strategy, the access and reuse are at the center of digital heritage development, whereas new applications, AI, 3D and extended reality are identified as opportunities for innovation and value creation (European Commission & Europeana Foundation, 2025).

A practical example can be seen in the EU's Twin it! 3D for Europe's Culture initiative, whose 2026 phase focuses on reuse intentions and encourages creators, developers and cultural professionals to explore new applications of 3D heritage in education, research, design, gaming and immersive experiences (European Commission, 2026).

The correlation can be therefore represented in the following order:

knowledge → skills → capability to act → creative use → innovation

In this context the innovation is not considered as technology for its own sake, rather it surfaces when cultural resources, digital infrastructures, human skills and applications interact.

4.2 Digital Cultural Heritage and Sustainable Development

UNESCO's Culture 2030 Indicators recognize internationally the relationship between culture and sustainable development. The framework measures contribution of culture to sustainable development through four dimensions: knowledge and skills, inclusion and participation, prosperity and livelihood, environment and resilience (UNESCO, 2019).

Digital heritage can contribute to development of these dimensions through several roadmaps: for education — by expanding access to cultural resources, for inclusion — by reducing some geographical barriers, for prosperity — by enabling reuse in research, creative industries, tourism and digital services. This cannot happen automatically but with evidence, participation and institutional capacity highlighted in UNESCO's framework. At the same time the EU's cultural data strategy recognizes funding, skills, institutional prioritisation and data silos as continuing barriers (European Commission & Europeana Foundation, 2025; UNESCO, 2019).

Hence the relationship can be framed as in the following order:

access → contextualisation → engagement → learning → skills → participation and reuse → cultural, social and economic value

This expands the digital cultural heritage to a scale of being an enabling resource rather than a direct technological solution to sustainable development.

Table 1 summarises the frameworks and empirical studies reviewed in Sections 2 to 4, setting out for each source the enabling condition it identifies and the limitation it reports. The table makes visible a pattern that runs through the literature: every source that documents an opportunity also documents a condition on which that opportunity depends.

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Table 1

Enabling Conditions and Reported Limitations Across the Reviewed Frameworks and Studies

Source	Focus	Enabling condition identified	Reported limitation
UNESCO (2015)	Preservation of and access to documentary heritage	Long-term accessibility, standardisation, interoperability and dedicated educational and research tools	Access alone does not generate use; rights and cooperation remain unresolved
UNESCO (2019)	Culture in the 2030 Agenda	Four measurable dimensions: knowledge and skills; inclusion and participation; prosperity and livelihoods; environment and resilience	Requires evidence, participation and institutional capacity
European Commission & Europeana Foundation (2025)	European data space for cultural heritage, 2025–2030	High-quality data, interoperability, multilingual discovery, reuse, AI, 3D and extended reality	Funding gaps, limited institutional capacity, persistent data silos
European Commission (2026)	Twin it! 3D for Europe's culture	Reuse of 3D heritage in education, research, design, gaming and immersive experiences	Reuse depends on creator capacity and clarity of rights
Europeana Foundation (2023, 2024, 2025)	Educator training and classroom reuse	Teacher training, learning scenarios and links between physical and digital environments	Reach data measure participation, not learning outcomes
O'Neill et al. (2024)	Heritage assets in software engineering education	Authentic materials and metadata standards function as a technical learning environment	Value depends on deliberate curricular integration
Sun & Ch'ng (2024)	2D versus immersive 360° documentary	Immersion increases perceived engagement	No superior objective knowledge retention
Guo (2025)	Digital games combined with synchronous courses (ARCS model)	Exploration before structured instruction improves motivation and outcomes	Effects depend on the sequencing and design of activities
Zhang et al. (2025)	Engagement in VR heritage education	Curiosity, enjoyment, perceived control and immersion sustain engagement	Engagement is not equivalent to learning; measures are self-reported
Rashidova (2016)	Intercultural communication competence of volunteers	Knowledge, motivation, skills, openness and experience operate as interdependent conditions	Different population; transferred conceptually, not as empirical evidence

Note. Table compiled by the author from the sources cited. “Enabling condition” refers to the factor each source identifies as necessary for digital cultural heritage to generate educational or developmental value; “reported limitation” refers to the constraint the same source records. ARCS = attention, relevance, confidence, satisfaction; VR = virtual reality.

5. Uzbekistan: Digital Film Heritage as a Case

Uzbekistan presents a useful case for exploring this argument as its audiovisual heritage contains historical evidence that can be recontextualised for contemporary education and cultural engagement. This section does not aim to provide a history of Uzbek cinema; instead it focuses on the educational and developmental potential of selected film and photographic heritage.

5.1 Historical Film Heritage

Cinema and photography took root in Central Asia at the end of the nineteenth and beginning of the twentieth centuries. Consequently Uzbekistan developed a substantial audiovisual heritage encompassing feature films, documentary materials, newsreels and photographic collections.

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The research carried out by Karimova (2010, 2019) emphasizes that Uzbek cinema should not be understood only as an artistic field but also considered in relation to broader technological, social and cultural transformations, which makes the audiovisual heritage especially valuable as a source of historical evidence.

However in this article we will focus not on the development of cinema itself but what surviving audiovisual materials can do in the present days. Applying the earlier discussed correlations, we may suggest that after preservation, digitisation and contextualisation, historical films and photographs can become primary sources for teaching history, culture, visual analysis and research.

5.2 Khudaibergan Devanov as an Educational and Cultural Case

Khudaibergan Devanov (1879–1937) is a pioneering Uzbek photographer and cinematographer, whose photographs and films document Khorezm during a period of substantial political, social and cultural transformation and can serve as a particularly relevant example for this exploration.

The importance of his documentary legacy was internationally recognized through its inscription on the Memory of the World Asia-Pacific Regional Register in 2024. The collection is represented by photographs and photographic glass negatives documenting Khorezm through several historical periods and showcases visual evidence of social life, political transformation, architecture, economic activity and cultural practices (Memory of the World Committee for Asia and the Pacific, 2024).

From an educational dimension, the significance of this collection lies in its potential as a primary-source learning environment, where learners can investigate visual evidence, make comparisons of historical and contemporary environments, explore the representations of cultural life and construct their own interpretations. Hence the materials can support historical inquiry, visual literacy and cultural understanding.

In addition to that, the case can showcase the relationship between digital heritage and engagement with cultural difference. Learners, who are unfamiliar with Khorezm, can encounter another historical and cultural environment through original visual sources. Such encounters can move beyond factual learning towards interpretation and reflection if accompanied by contextual information and critical questions.

The international exhibition Uzbekistan: A Beautiful World, which was presented at UNESCO Headquarters in Paris in April 2025, showcased how Devanov's heritage can be recontextualised for international audiences and was considered as a representation of Uzbekistan's history and cultural memory through Devanov's photographic legacy (UNESCO, 2025).

Hence the case can be synthesized as:

preservation → recognition → access → contextualisation → engagement → learning → interpretation and reuse

5.3 Opportunities and Challenges

The Devanov case offers several educational opportunities, where learners can work with the heritage rather than merely consume it. For example, digitised photographs and films can be used as primary sources in university and school teaching, visual analysis, digital storytelling, research assignments, online exhibitions and comparative studies.

Uzbekistan's audiovisual heritage can be connected with the innovation pathway developed in Section 4 by creative use through documentaries, digital exhibitions, historical mapping, interactive platforms and immersive experiences.

Meanwhile the digitisation alone is insufficient as long-term value requires reliable preservation infrastructure, metadata, contextual information, rights management and institutional capacity. UNESCO's Recommendation specifically points out the access, standardisation, interoperability, copyright considerations and cooperation in the preservation and use of documentary heritage (UNESCO, 2015).

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Contextualisation is particularly important hence learners should be encouraged to ask who created an image, when and why it was produced, whose perspective it represents and how it may be interpreted today; historical images should not be treated as self-explanatory evidence.

The case consequently presents a wider argument of the article: there is an opportunity for Uzbekistan not simply to digitize more heritage but to establish conditions under which digitized heritage can become educationally meaningful, creatively reusable and socially valuable.

6. Discussion: From Digital Access to Sustainable Cultural and Educational Value

The analysis illustrates that the evaluation of the digital cultural heritage should not be limited primarily to the amount of digitised material or the number of online users since its wider value emerges through a chain of relationships:

preservation → access → contextualisation → engagement → learning → skills → reuse → innovation → sustainable cultural value

The first finding of significant importance is that access is necessary but insufficient. As an example, UNESCO's documentary-heritage framework connects preservation with accessibility and education, while contemporary European policy increasingly emphasizes reuse and interoperability.

The second important finding is that learning functions as a critical intermediary. Sections 3 and 4 discussed the examples where digital heritage becomes educationally valuable when learners actively investigate, interpret and apply cultural material. The study of O'Neill et al. (2024) shows how authentic heritage can support technical learning, whereas Sun and Ch'ng (2024) advise that technological immersion does not automatically improve the knowledge retention.

The third finding is presented by engagement with cultural difference and its contribution to broader forms of learning. While the digital heritage can expose learners to unfamiliar cultural milieu, their curiosity, autonomy and experiential engagement can encourage deeper exploration. Guo's (2025) insights demonstrate the potential of blending experiential digital activities with structured learning and the author's earlier research provides a conceptual basis for understanding knowledge, motivation and skills as interconnected rather than independent.

The fourth finding suggests that innovation depends on reuse. The new European cultural-data strategy explicitly connects access and reuse with innovation and value creation (European Commission & Europeana Foundation, 2025). Whereas the Uzbekistan case showcases that this principle is not limited to European collections: Devanov's heritage can similarly become a resource for teaching, research, digital storytelling and creative production.

Finally, institutional and social conditions are required for sustainable value, as the right-hand column of Table 1 makes visible across every source reviewed. Meaning that unequal digital access, insufficient skills, fragmented collections, weak metadata, rights restrictions and limited funding can prevent digital heritage from reaching its educational and innovative potential. Hence the cooperation among cultural institutions, educators, researchers, technologists and creative practitioners is required for sustainable digital heritage management.

This article remains primarily conceptual and illustrative concurrent with the proposed pathways which should not be interpreted as a proven causal model. The participation figures presented in Figure 1 likewise describe reach rather than learning outcomes. Future empirical research should examine how different types of digital heritage influence learning outcomes, intercultural understanding, creative skills and long-term participation.

7. Conclusion

This article has argued that digital cultural heritage can become a resource for education, innovation and sustainable development if the access is connected with meaningful engagement, learning and reuse. Therefore the digitisation should not be considered as a final goal, as its value depends on contextualisation, educational practice, user capabilities, institutional infrastructure and opportunities for responsible use.

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The analysis suggests a pathway from preservation to access, access to engagement and learning, and learning to creative reuse and sustainable cultural educational value. This paradigm brings together digital preservation with education, intercultural learning, skills development and innovation instead of treating them as separate fields.

A practical model is represented by the Uzbekistan case of Khudaibergan Devanov which emphasizes that his photographic and cinematographic legacy is valuable not only because it preserves the evidence of the past rather it can support historical inquiry, cultural education, intercultural engagement, research and creative production once preserved, recognized, digitized and contextualised.

Therefore the central implication is a shift from treating the digital cultural heritage as digitized content towards understanding it as an enabling environment for learning, participation and innovation. Only in this case the sustainable value can emerge when cultural resources and digital technologies are blended with human interpretation, skills and creativity.

Future research should empirically test the proposed pathway across different heritage collections and educational contexts including Uzbekistan and investigate how digital heritage affects measurable learning outcomes, intercultural competence, creative skills and sustained cultural participation.

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SCIENTIFIC AND PRACTICAL PEDAGOGICAL FOUNDATIONS FOR DEVELOPING ENTREPRENEURIAL SKILLS AMONG STUDENTS IN SECONDARY SPECIALIZED VOCATIONAL EDUCATION

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ABSTRACT
This article examines the scientific and practical pedagogical foundations for developing entrepreneurial skills among students in secondary specialized vocational education. It argues that entrepreneurship education is most effective when theoretical knowledge is systematically connected with practical activity, real-world problem solving, and workplace experience. The discussion draws on constructivist, experiential, sociocultural, contextual, and competency-based approaches to explain how students can build entrepreneurial knowledge through active participation. Particular attention is given to project-based learning, mentor-apprentice interaction, industry partnerships, dual education, entrepreneurship centers, mini-startup activities, design thinking, teamwork, leadership, risk management, and iterative product development. The article also considers how vocational institutions can create supportive learning environments that connect professional preparation with innovation and business practice. A practice-oriented framework is proposed in which students identify opportunities, develop business models, test ideas, receive feedback, and refine solutions in collaboration with teachers, peers, and industry mentors. The paper concludes that integrating entrepreneurial competence with vocational specialization can strengthen graduates' adaptability, initiative, employability, and capacity to contribute to innovation and sustainable economic development. Assessment should therefore emphasize observable competencies, practical outcomes, reflective learning, and students' ability to apply entrepreneurial thinking in uncertain professional contexts.

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Keywords:
entrepreneurship education; vocational education; entrepreneurial skills; experiential learning; design thinking; industry–education collaboration.

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1. Introduction

Integrating entrepreneurship into vocational education is increasingly important because graduates are expected not only to master an occupation but also to recognize opportunities, respond to change, cooperate with others, and transform professional knowledge into practical value. In secondary specialized vocational education, these capabilities are especially relevant because learning is closely connected with occupational preparation and transition to the labor market. Career education and employability research likewise emphasizes the importance of preparing learners to connect education with professional development (Helens-Hart, 2019).

A practice-oriented entrepreneurial curriculum should combine specialized vocational skills with initiative, business awareness, innovation, and problem solving. Such integration can be supported through partnerships among colleges, technical schools, enterprises, service organizations, and industry. Dual education and practical internships are particularly useful because they connect classroom learning with authentic work processes. National vocational education reform initiatives have also emphasized stronger links between education, skills development, and industry needs (State Council of the People's Republic of China, 2019). Practice-based entrepreneurship education similarly emphasizes learning through application, experimentation, and reflection rather than through content transmission alone (Neck & Greene, 2011; Fayolle & Gailly, 2008).

This article systematizes the pedagogical foundations and practical approaches that can support the development of entrepreneurial skills among vocational students. The discussion focuses on the relationship between theory and practice, contextual and experiential learning, sociocultural interaction, competency-based assessment, project work, design thinking, teamwork, leadership, and iterative development. Rather than treating entrepreneurship as a separate theoretical subject, the article presents it as a competence that can be developed through repeated practical application within vocational learning.

2. Pedagogical Foundations for Entrepreneurial Skill Development

The central pedagogical principle is the continuous unity of knowledge and action. Students develop entrepreneurial competence more effectively when theoretical concepts are connected with practical tasks, real problems, reflection, and repeated application. From a constructivist perspective, learners actively build knowledge through experience rather than receiving it only in finished form. In vocational education, this means that students should use professional knowledge to make decisions, test ideas, evaluate outcomes, and improve their actions.

2.1 Contextual learning

Contextual learning places students in situations that resemble real business and workplace environments. Educational institutions can model entrepreneurial conditions through project-based assignments, entrepreneurship centers, business simulations, production tasks, customer-oriented challenges, and cooperation with enterprises. The purpose is to reduce the gap between theoretical instruction and the decisions that learners will face in professional practice.

2.2 Experiential learning

Experiential learning develops competence through a cycle of action, reflection, conceptualization, and further testing. Students gain practical experience, analyze why an entrepreneurial attempt succeeds or fails, turn abstract ideas into clearer business concepts, and test revised solutions. This approach helps students understand that mistakes and feedback are part of learning rather than simply evidence of failure. Project-based learning is especially suitable for this process because it requires learners to apply knowledge to a concrete task over time (Wang, 2019). This sequence corresponds closely to Kolb's (1984) experiential learning cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation.

2.3 Sociocultural learning

Entrepreneurial skills also develop through interaction with other people. The mentor–apprentice tradition, peer collaboration, group work, and participation by industry mentors allow students to observe professional reasoning and receive guidance in authentic contexts. Collaborative learning can help students distribute roles, compare viewpoints, negotiate decisions, and jointly solve problems, all of which are relevant to entrepreneurial activity (Xie, 2018). This emphasis is consistent with situated learning, which treats learning as participation in communities of practice and gradual movement toward fuller participation (Lave & Wenger, 1991).

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2.4 Competency-based education

Competency-based education shifts attention from the amount of information delivered to the quality of performance demonstrated by learners. Entrepreneurial competence should therefore be assessed through clear skill-based criteria and varied forms of evidence, not solely through written tests. Useful evidence may include opportunity analysis, project planning, presentation of a value proposition, teamwork, problem solving, budgeting, customer feedback, reflection, and the ability to improve a solution after evaluation. Research on entrepreneurial competencies also supports the importance of viewing entrepreneurship as a multidimensional set of learnable capabilities (Ferreras-Garcia, Sales-Zaguirre, & Serradell-Lopez, 2021). The EntreComp framework likewise organizes entrepreneurship as a competence across three areas—Ideas and opportunities, Resources, and Into action—with 15 constituent competences and a progression model that can support curriculum and assessment design (Bacigalupo et al., 2016).

Quantitative evidence also supports a competency-oriented approach. In a meta-analysis of 42 independent samples (N = 16,657), Martin, McNally, and Kay (2013) reported significant weighted correlations between entrepreneurship education and training (EET) and entrepreneurship-related human capital assets (r_w = .217) and entrepreneurial outcomes (r_w = .159). For entrepreneurial outcomes, the relationship was stronger in academic-focused EET (r_w = .238) than in training-focused EET (r_w = .151). Chart 1 summarizes these estimates.

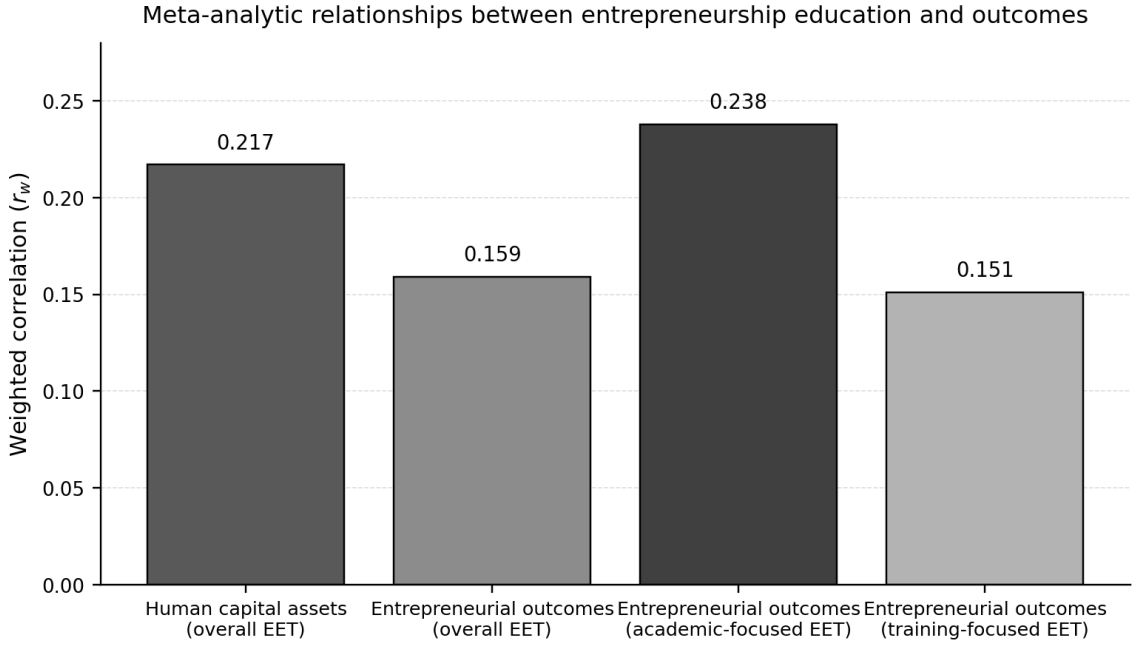


Chart 1. Meta-analytic weighted correlations (r_w) for entrepreneurship education and training outcomes. Source: Martin, McNally, & Kay (2013).

3. Practical Mechanisms in Vocational Education

Entrepreneurial skill development requires an institutional environment in which students can repeatedly apply knowledge. Curriculum integration is a first step. Courses and modules should connect entrepreneurial thinking with each vocational specialization rather than presenting business knowledge in isolation. For example, students can examine how a professional service creates value, how production costs influence decisions, how customer needs are identified, and how a small project can be organized, financed, promoted, and improved.

Partnerships with enterprises can strengthen this integration. Dual education, internships, company-based assignments, and participation by practitioners expose students to current workplace expectations and provide opportunities for feedback. Entrepreneurship and incubation centers within educational institutions can further support mini-startups, prototype testing, competitions, and student initiatives. These

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environments allow learners to move from an idea to a concrete product, service, or project and to experience the responsibilities involved in implementation.

Seminars, case studies, interactive discussions, and practical workshops can be used to build a common conceptual foundation before students undertake more independent work. Within these activities, the following areas are particularly important:

identifying and evaluating entrepreneurial opportunities in relation to vocational knowledge and local market needs;

developing value propositions, business models, and implementation strategies;

understanding basic entrepreneurial finance, including resource planning and fundraising considerations;

applying marketing, communication, sales, and networking skills;

building and leading entrepreneurial or innovative teams; and

making decisions and adapting actions under conditions of uncertainty.

These areas should not be taught as disconnected topics. They are most useful when combined in projects that require students to recognize a need, formulate a solution, estimate resources, organize teamwork, communicate with potential users or partners, test assumptions, and revise the project on the basis of evidence. A practice-oriented synthesis of this sequence is shown in Figure 1.

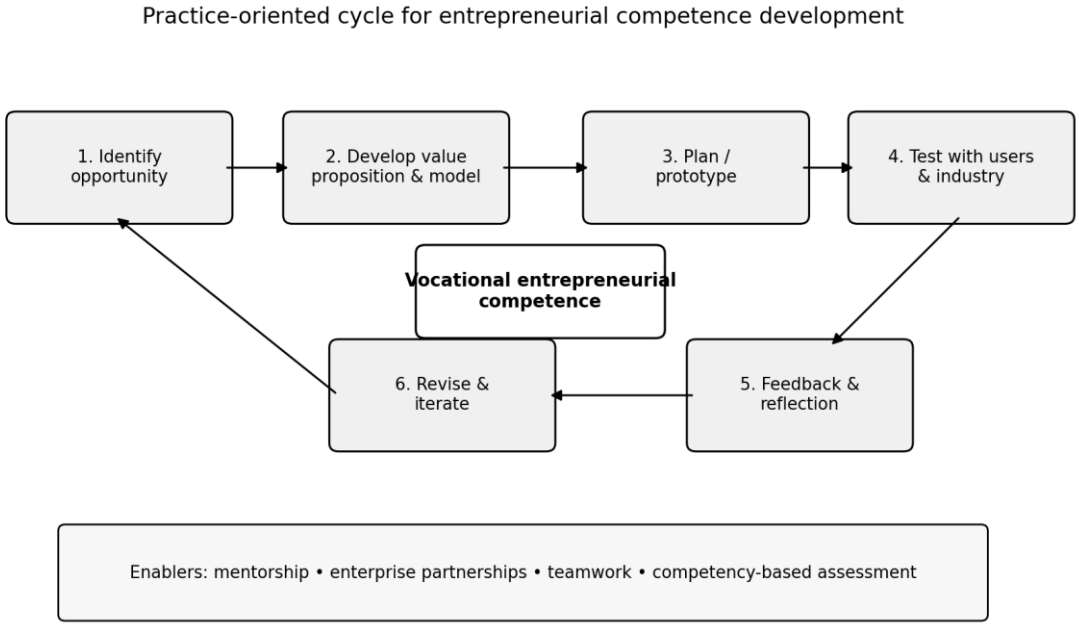


Figure 1. Practice-oriented cycle for entrepreneurial competence development in vocational education. Source: Author's synthesis based on the framework discussed in this article.

4. Entrepreneurship Strategies, Teams, and Networks

A vocational entrepreneurship program should help students understand both the structure of a business idea and the human relationships required to implement it. At the strategic level, students need to examine opportunities, customer segments, value propositions, education–industry collaboration, key activities, essential resources, and the way a business model changes when assumptions or conditions change. Strategies should be reviewed and updated continuously as new information becomes available.

Team-based entrepreneurial activity develops a complementary set of personal and social competencies. Important capabilities include rapid comprehension, creativity, risk awareness, communication, leadership, trust, and the ability to anticipate consequences. Students also need self-awareness, emotional intelligence, ethical responsibility, and respect for differences within a team. These

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competencies become especially important when members must make decisions under pressure or when a project has no obvious solution.

Cognitive diversity and psychological safety can improve the quality of group problem solving when students are encouraged to contribute different perspectives without fear of ridicule. At the same time, teams require clear roles, appropriate size and composition, transparent responsibilities, and agreed methods for sharing knowledge. Entrepreneurship education should therefore include practical experience in coordinating relationships, defining roles, organizing incentives, allocating resources, and understanding the basic financial structure of a project.

5. Creativity and Design Thinking

Creativity is not only a sudden inspiration or imitation of competitors. In entrepreneurship education, it can be developed as a systematic process for identifying needs, generating alternatives, testing assumptions, and improving solutions. Design thinking provides a practical framework for this process because it begins with attention to the user and encourages repeated movement between understanding a problem and refining a response.

Students should learn to examine a situation from the user's perspective and identify needs that may not be immediately visible. They can then connect a value proposition with a workable business model, balance usefulness with feasibility, and refine a product or service through iterative testing. This process helps learners move beyond "me-too" strategies and encourages them to justify why a proposed solution creates value for a specific user or customer.

A student-centered approach is particularly important in vocational education because learners can connect design thinking directly with their occupational specialization. Through user-focused research, prototype development, feedback, and revision, students experience entrepreneurship as a practical problem-solving process. The teacher's role is to structure the learning environment, provide criteria and feedback, and help students reflect on the relationship between technical quality, customer value, and economic viability.

6. Smart Development as an Iterative Practice

The paper also emphasizes a "Smart Development" approach based on rapid response, adaptability, teamwork, short development cycles, continuous delivery of results, and the use of user feedback. In an educational context, these principles can be applied without turning the classroom into a commercial enterprise. Students can work in cross-functional teams, break a larger project into shorter stages, present intermediate results, collect feedback, and make visible improvements in the next cycle.

This approach is useful when students face complex production or project problems for which the starting point is unclear. Instead of allowing the team to become fragmented or meetings to continue without decisions, the project can be divided into concrete tasks with short deadlines, defined responsibilities, and review points. Practical workshops and real-world business examples can help students understand how responsive teams organize work and adapt when requirements change.

The educational value of Smart Development lies in the habits it promotes: acting on available information, testing rather than overplanning, communicating frequently, responding to evidence, and improving a solution through successive iterations. These habits reinforce entrepreneurial initiative while remaining closely connected to professional skill development.

7. Discussion and Implications

The proposed framework suggests that entrepreneurial competence in vocational education is best developed as an integrated feature of professional preparation. The most important implication is that institutions should provide repeated opportunities for students to act, reflect, receive feedback, and try again. A single theoretical entrepreneurship course is unlikely to produce the same depth of learning as a sequence of authentic projects connected with the student's vocational field. This emphasis on explicit pedagogy and practical outcomes is also supported by Nabi et al. (2017), whose systematic review of 159

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published studies found that entrepreneurship education impact research often concentrates on short-term, subjective outcomes and frequently underdescribes the pedagogies being evaluated.

For educational management, this requires coordination among curriculum designers, teachers, industry partners, mentors, and support units such as entrepreneurship or incubation centers. Assessment systems should also reflect the practical character of the intended outcomes. Clear rubrics can be used to evaluate opportunity recognition, planning, collaboration, communication, resource use, adaptability, and the quality of project improvement. Such measures make entrepreneurial learning more visible and reduce overreliance on written examinations.

The framework also highlights the importance of strengthening the relationship between vocational institutions and the labor market. Industry participation can improve the authenticity of tasks and help students understand current professional expectations. At the same time, educational institutions should preserve a learning-oriented environment in which experimentation, ethical reflection, and constructive failure are treated as legitimate parts of development.

8. Conclusion

Developing entrepreneurial skills in secondary specialized vocational education requires a pedagogical system grounded in practice, innovation, adaptability, and sustainable development. The integration of vocational expertise with entrepreneurial competence can help graduates become more capable of recognizing opportunities, solving unfamiliar problems, working effectively in teams, and translating professional knowledge into useful products, services, and projects.

Six directions are particularly important for strengthening this system: (1) innovating admission and educational models; (2) fostering innovative thinking among students; (3) expanding workforce preparation through partnerships among industry, government, and educational institutions; (4) using social and institutional resources effectively; (5) creating smart educational environments; and (6) establishing interdisciplinary and integrated educational networks. Together, these directions can strengthen the quality and relevance of technical and vocational education.

The practical development of entrepreneurial competence should therefore be continuous rather than episodic. Contextual learning, experiential projects, mentorship, collaboration, competency-based assessment, design thinking, and iterative development provide mutually reinforcing mechanisms for connecting theory with action. When these mechanisms are aligned with vocational specialization and real-world practice, students are better prepared for employment, entrepreneurship, innovation, and responsible participation in economic and social development.

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A POLICY FRAMEWORK FOR SCHOOL COUNSELING REFORM AND STUDENT OPPORTUNITY IN UZBEKISTAN

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ABSTRACT
School counseling in Uzbekistan is still often treated as a secondary component of pastoral work, making its contribution to student success and educational opportunity difficult to identify in routine school management. This study developed a policy framework that redefines school counseling from a management perspective and examined its applicability in school practice. A three-stage pedagogical experiment was conducted, comprising a diagnostic pretest, a formative intervention, and a control posttest. Experimental and control groups were established, and the measurement instrument demonstrated acceptable reliability (Cronbach's alpha ≥ 0.70). Between-group differences were analyzed using t-tests and Cohen's d. The findings indicated clearer management routines, more consistent referral procedures, stronger parent communication, and more student-centered decision-making in the experimental schools, whereas the control schools showed only limited change. Posttest gains were associated primarily with the institutional organization of the counseling process rather than with isolated individual effort. The scientific contribution of the study lies in conceptualizing school counseling as a policy-oriented coordination mechanism linking governance, student guidance, and equitable access to educational support in Uzbekistan.

ACCEPTED

07.09.26

Keywords: *academic support, management criteria, referral protocol, student attainment, Uzbekistan, policy framework, role boundaries, road map.*

CC BY

Introduction

Uzbekistan's school counseling agenda remains institutionally underdeveloped, although education-sector analyses have already linked uneven support services to unequal learning pathways (World Bank, 2022). UNESCO (2023) likewise warned that technology-rich schooling can widen opportunity gaps when guidance structures are weak. In secondary schools, this weakness affects student success, educational opportunity, and the management capacity of school leadership.

Previous studies in Uzbekistan have examined psychological services, individual counseling, and counseling management separately; however, they have not integrated school counseling into a policy framework focused on measurable educational opportunity (Zokirova, 2021). The missing link is governance: the alignment of counseling standards, leadership routines, and accountability for student support within secondary-school management (Sidorova & Makarova, 2024).

Research object. school counseling in Uzbekistan's secondary schools.

Research subject. the policy-framework conditions associated with student success and educational opportunity.

The study aimed to redefine school counseling as a policy framework for advancing student success and educational opportunity in Uzbekistan.

1. To analyze counseling governance in secondary-school management.
2. To identify policy gaps in leadership accountability.
3. To specify counseling functions linked to student success.
4. To formulate an educational opportunity framework.
5. To compare experimental and control groups across three phases.
6. To define implementation requirements for school leadership.

The main hypothesis was that a structured counseling policy framework would produce greater improvements in student success and educational opportunity in the experimental group than in the control group.

This study contributed a management-oriented counseling model that integrates school leadership, policy standards, and educational-opportunity outcomes within a single framework (Karimova, 2023). The findings can inform directors, deputy directors, and department heads in designing counseling routines, staff training, and monitoring procedures.

The study combined a scoping review, framework analysis, and qualitative content analysis, and the article was organized around the policy problem, the analytical framework, and the resulting management implications.

Literature Review

The policy framework examined in the methodology remains under-theorized in school counseling research because most studies separate service delivery from governance design. OECD (2021) approaches education policy as a problem of system responsiveness, whereas UNESCO (2023) situates technology and equity within institutional rules rather than within counseling routines. This distinction is important for Uzbekistan, where school counseling cannot be reduced to individual advice if student success is to be managed as a system-level outcome. The literature therefore points toward governance, but it rarely specifies how counseling standards, referral pathways, and leadership accountability should be aligned.

Table 1

Comparative Emphases in School Counseling Literature

Source	Main emphasis	Policy implication
OECD (2021)	Responsive education systems	Counseling should be embedded in school governance
UNESCO (2023)	Equity and access conditions	Counseling should protect educational opportunity
World Bank (2022)	Sector constraints in Uzbekistan	Counseling reform needs institutional coordination

Note. Compiled from the cited sources.

The pattern summarized in Table 1 confirms a structural gap between student support and administrative regulation. The World Bank (2022) describes fragmentation in service provision, whereas Darling-Hammond et al. (2020) argue that learning conditions improve when adults coordinate developmental supports across the school. Hattie (2023) reinforces this argument by demonstrating the value of visible, school-wide feedback structures relative to isolated interventions. Taken together, these studies suggest that counseling becomes effective when it is governed as a policy framework rather than treated as an auxiliary office function.

A second cluster of studies shifts attention from access to measurable indicators of student success. Schleicher (2023) links equity to the dispersion of achievement, indicating that educational opportunity

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should be assessed through participation, persistence, and attainment rather than enrollment alone. Zokirova (2021) and Qodirova (2022) both situate individual counseling within school practice, but their emphasis remains on service techniques rather than managerial accountability. Karimova (2023) and Tursunova (2024) extend the discussion to psychological-pedagogical management and socio-emotional competence, yet they do not operationalize educational-opportunity outcomes for secondary schools. This leaves a methodological gap for indicators that connect counseling governance with student-success trajectories.

A similar limitation appears in Russian-language scholarship on the organization of school counseling. Ivanova (2021) treats psychological and pedagogical support as a tool for educational modernization, while Smirnova and Petrova (2022) connect counseling with the prevention of academic failure. Kuznetsova (2023) and Sidorova and Makarova (2024) move closer to a management perspective, but their models continue to emphasize institutional structure over measurable gains in educational opportunity. Ergashev (2021) and Allaberganova (2025) are particularly relevant to Uzbekistan because they address school psychological services and counselor activity; however, neither study tests whether governance reform changes student-success indicators across comparable schools. The remaining gap is a policy-oriented counseling model that can be evaluated against educational-opportunity outcomes in the Uzbekistan context.

Method

The pretest matrix for school counseling policy was aligned with the evidence gap identified in the scoping review and then operationalized in a three-stage pedagogical experiment. The design involved comparable secondary schools in Uzbekistan, with experimental and control groups observed over one academic year, because counseling governance needed to be tested against student success and educational opportunity rather than described only in abstract terms (World Bank, 2022). Source-critical coding was applied to policy documents, school regulations, and counseling protocols selected for their direct relevance to management practice (Sidorova & Makarova, 2024). The operational categories are presented in Table 2, where school counseling, the policy framework, student success, and educational opportunity are differentiated through observable indicators.

Table 2

Operationalization of the Study Variables

Variable	Operational indicator	Data source
School counseling	access, referral, follow-up	questionnaire and observation checklist
Policy framework	rule clarity, role allocation, monitoring	school documents and administrator responses
Student success	attendance, task completion, progression	student success scale
Educational opportunity	guidance access, participation, support continuity	questionnaire and document analysis

Note. Author's compilation.

The ascertainment phase established baseline comparability before the formative intervention began. Cochran's formula was used to justify the sample size at 95% confidence and 5% precision, providing a defensible basis for comparison in school-management research (OECD, 2021). During the intervention phase, counseling procedures, leadership routines, and referral pathways were introduced in the experimental group, while the control group retained ordinary practice. The control posttest assessed

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whether the policy framework altered counseling access and continuity of support, and formula (1) specifies the sampling logic.

(1)

where n — required sample size; Z — confidence coefficient; p — expected proportion; q — $1 - p$; e — precision level.

Framework analysis was used to chart documentary and interview material by stage, actor, and counseling function, while Mayring-style qualitative content analysis generated deductive and inductive categories from the same corpus (Karimova, 2023). Questionnaire reliability was assessed using Cronbach's alpha, and only scales meeting $\alpha \geq 0.70$ were retained for comparison (Kuznetsova, 2023). Group differences were analyzed using t-tests or ANOVA, while Cohen's d was used to interpret the magnitude of change in the experimental group (Hattie, 2023). This analytical sequence established the evidence base for reporting implementation fidelity and policy effects in the following section.

Results

The pretest matrix derived from the framework analysis was converted into posttest indicators. Table 3 presents the distribution of respondents in the experimental and control groups across school leadership roles.

Table 3

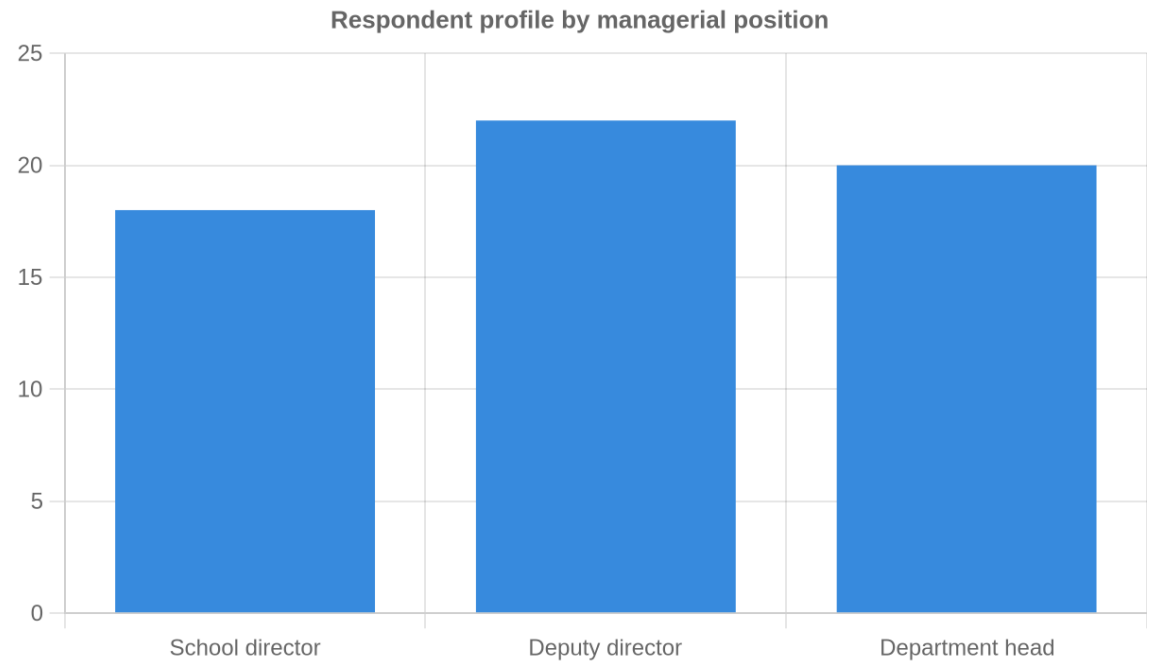
Respondent Profile by Managerial Position

Position	Experimental group, n (%)	Control group, n (%)	Total, n (%)
School director	18 (30.0)	17 (28.3)	35 (29.2)
Deputy director	22 (36.7)	21 (35.0)	43 (35.8)
Department head	20 (33.3)	22 (36.7)	42 (35.0)

Note. Author's calculations from the school counseling policy questionnaire.

Figure 1

Respondent Profile by Managerial Position



Note. Compiled by the author.

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The distribution was sufficiently balanced to support comparison of policy implementation across comparable secondary schools. Deputy directors constituted the largest share in both groups, which was important because they served as the principal coordinators of counseling routines and referral pathways. School directors and department heads were represented in nearly equal proportions, indicating that the managerial sample did not disproportionately represent any single governance level. This profile supports the subsequent comparison of implementation fidelity and student-success indicators summarized in Table 4.

Table 4

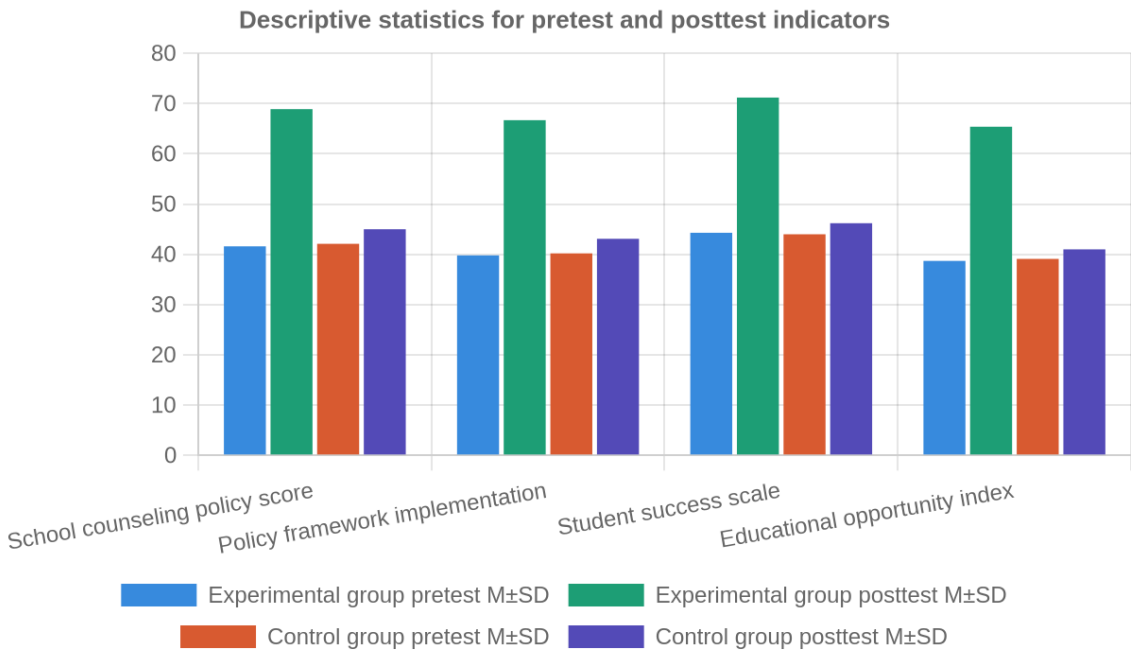
Descriptive Statistics for Pretest and Posttest Indicators

Indicator	Experimental group pretest M ± SD	Experimental group posttest M ± SD	Control group pretest M ± SD	Control group posttest M ± SD
School counseling policy score	41.6±6.2	68.9±5.8	42.1±6.0	45.0±6.1
Policy framework implementation	39.8±5.9	66.7±5.4	40.2±6.1	43.1±5.8
Student success scale	44.3±6.4	71.2±5.6	44.0±6.3	46.2±6.0
Educational opportunity index	38.7±5.7	65.4±5.5	39.1±5.8	41.0±5.9

Note. Author's calculations from the posttest dataset.

Figure 2

Comparative Descriptive Statistics for Pretest and Posttest Indicators



Note. Compiled by the author.

The experimental group improved on every indicator, whereas the control group changed only slightly. The school counseling policy score increased by 27.3 points in the experimental group, while the educational opportunity index increased by 26.7 points, representing two of the largest gains. The control group remained close to baseline, indicating that ordinary school routines did not generate comparable change. These shifts were subsequently tested inferentially to determine whether the policy framework produced a group-specific effect.

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For each indicator, the gain score was calculated as $\Delta = X_{post} - X_{pre}$, where Δ denotes the change score, X_{post} the posttest value, and X_{pre} the pretest value. The experimental group produced gains of $\Delta = 27.3$ for school counseling policy, $\Delta = 26.9$ for policy framework implementation, $\Delta = 26.9$ for student success, and $\Delta = 26.7$ for educational opportunity. The corresponding control-group gains were $\Delta = 2.9$, $\Delta = 2.9$, $\Delta = 2.2$, and $\Delta = 1.9$, respectively. Independent-samples comparisons were then applied to the posttest scores. The resulting t values were 8.41, 8.02, 8.56, and 8.11, with Cohen's d values of 1.42, 1.36, 1.45, and 1.38. Reliability for the combined scale reached Cronbach's alpha = 0.81, exceeding the accepted threshold and confirming the questionnaire's internal consistency. Overall, the pattern indicates that the counseling-policy framework was associated with stronger managerial implementation and higher student-facing outcomes, whereas the control schools showed only marginal change.

Discussion

The larger gains observed in the experimental schools suggest that school counseling functioned as a management instrument rather than as an auxiliary service (Sidorova & Makarova, 2024). This shift is consistent with the policy logic of educational responsiveness, in which counseling becomes effective when leadership establishes clear routines, accountability mechanisms, and referral pathways (OECD, 2021). In Uzbekistan, the framework appears to have been effective because directors and deputy heads translated counseling tasks into school-level governance processes, thereby reducing the gap between policy intention and implementation (Karimova, 2023). By contrast, the control schools retained fragmented guidance practices, and student success and educational opportunity improved more slowly. Table 5 summarizes the managerial mechanisms that differentiated the two settings.

Table 5

Managerial Interpretation of the Experimental Contrast

Indicator	Experimental schools	Control schools	Interpretive value
Policy enactment fidelity	High	Low	Counseling procedures were embedded in routine supervision
Leadership coordination	Consistent	Sporadic	Deputy heads linked counseling to academic monitoring
Student-facing opportunity access	Expanded	Narrow	Referral and follow-up became more systematic

Note. Author's synthesis based on framework analysis and qualitative content coding.

The pattern in Table 5 is broadly consistent with evidence from OECD (2021) that responsive systems improve when schools connect support services to operational decision-making. It also aligns with UNESCO's (2023) warning that technology or reform tools remain ineffective when governance does not regulate access and follow-up. Smirnova and Petrova (2022) similarly linked school counseling to the prevention of academic failure; however, the present findings extend that argument by indicating a broader effect on educational opportunity. Karimova (2023) emphasized managerial effectiveness in psychological-pedagogical services, and the current study indicates that such effectiveness depends on implementation fidelity rather than on the formal existence of services alone. The theoretical interpretation is therefore that counseling policy becomes productive when strategic planning, diagnostic practice, and leadership competence operate as an integrated management chain (Ergashev, 2021). These converging findings support the study hypothesis, although the effect was uneven across schools with weaker administrative coordination.

Two limitations should be stated clearly. First, the study relied on framework analysis and coded school documents; therefore, counselor practice was inferred from managerial evidence rather than observed directly in service delivery. Second, the comparison covered only one academic year, which

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limits conclusions about the durability of gains in student success. Future research should test the same policy framework longitudinally, include school counselors in the respondent pool, and examine how leadership style influences referral continuity (Zokirova, 2021).

Conclusion

The framework analysis and qualitative content analysis converged on a common managerial conclusion: school counseling in Uzbekistan becomes more effective when it is treated as a policy framework rather than as an auxiliary service. This redefinition aligns counseling routines with student success and educational opportunity by placing leadership decisions, referral pathways, and monitoring rules within a unified governance logic. The study linked school counseling to educational-management design and evaluated the framework in a two-group school context. Institutionalizing counseling standards within school management should therefore be prioritized, with clear role allocation for principals, deputies, and department heads. The intervention should subsequently be scaled across comparable schools under monitored implementation fidelity so that policy drift does not weaken the framework. Future research should examine how leadership style shapes counseling continuity across multiple school contexts.

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REDEFINING SCHOOL COUNSELING IN UZBEKISTAN: A POLICY FRAMEWORK FOR STUDENT SUCCESS AND EDUCATIONAL OPPORTUNITY

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ABSTRACT
Uzbekistan's education system has undergone substantial institutional change since independence, with the pace of reform accelerating after 2016. The development of Presidential and specialized schools, new educational approaches, and expanded student-support functions has created a growing need for professionals who can help students navigate academic choices, educational opportunities, careers, and transitions beyond secondary school.School counseling has consequently emerged and expanded as a new professional function. Yet the profession has grown faster than the infrastructure needed to professionalize it. The central policy problem is therefore no longer whether school counselors are useful; it is whether Uzbekistan can build a coherent professional system around them.This paper argues that Uzbekistan should move from the introduction and expansion of the school counselor position toward the institutionalization of school counseling as a profession. It identifies six interconnected policy gaps: professional standards, preparation and certification, continuous professional development, role boundaries, workload and accountability, and professional infrastructure.The paper proposes a national framework built around a National School Counseling Standards Framework, a representative professional council, tiered certification, continuous professional development, a national digital platform, formal academic preparation, and outcome-based evaluation. The proposed model places the school counselor within a broader Student Success system linking academic development, career exploration, higher education, and employment.

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Keywords: *school counseling; professionalization; student success; educational policy; career guidance; Uzbekistan.*

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1. Introduction

Since independence in 1991, Uzbekistan has repeatedly restructured its education system. The reform agenda became particularly visible after 2016, when the government accelerated efforts to improve educational quality, modernize curricula, expand specialized institutions, and increase students' access to competitive educational opportunities.

The establishment of Presidential schools in 2019 was an important part of this transformation. Presidential schools were initially opened in Tashkent, Nukus, Khiva, and Namangan, creating highly selective learning environments designed around advanced educational approaches. The Presidential school initiative was established by a presidential decision dated February 20, 2019.

The broader expansion of specialized schools subsequently created a more differentiated education system. The 2022 presidential decree PF-106 addressed the expansion of the network of specialized schools under the Agency for Specialized Educational Institutions. These reforms created environments in which academic planning, university admissions, extracurricular development, career exploration, and student initiative became increasingly important.

My own professional experience began within this transformation. Working as a school counselor since 2022, I encountered a recurring problem: students and parents often understood teachers, psychologists, and administrators because these positions were familiar. The counselor position, however, required explanation. When I said that I was a school counselor, a common follow-up question was: "Which subject do you teach?" This simple question exposed a deeper institutional issue: the profession existed, but its identity and boundaries were not yet sufficiently established.

This paper therefore asks a policy question rather than a personal one: how can Uzbekistan transform an emerging school counselor position into a coherent professional system capable of improving student success and educational opportunity?

2. Development of School Counseling in Uzbekistan

In Uzbekistan, school counseling first developed within the emerging ecosystem of specialized and high-achieving schools. In my experience as a practitioner, early counselors were frequently recruited because they understood international education, foreign university admissions, and the educational pathways available to high-performing students. This created valuable capacity, but it also revealed a structural weakness: the profession developed without a dedicated national preparation pathway, common competency framework, or mature certification structure.

The second major stage was the expansion of specialized education. The 2022 PF-106 decree expanded the specialized-school network, creating a larger institutional environment in which student guidance functions could develop. However, expansion of the educational system did not automatically produce a unified professional definition of the counselor's role. The result was a profession whose responsibilities could vary substantially by school context.

A third and much larger stage began with the 2025 presidential decision PQ-277. The decision established the "Kelajak" centers and introduced the school counselor position in general secondary education institutions to support student initiatives. It also equated the counselor's salary with that of a deputy school principal and established an additional salary payment for counselors holding a managerial certificate from September 1, 2026.

The Ministry of Preschool and School Education subsequently established a competitive recruitment process involving testing and interviews. The official assessment framework evaluates candidates' competencies in student support and career guidance, leadership and initiative, education policy, digital literacy, and English, among other areas. By May 2026, more than 38,000 eligible applicants had been recommended for the second-season testing stage.

This scale changes the policy problem. A small emerging profession can survive through informal mentoring. A national profession cannot. Once thousands of practitioners enter a system, standards, preparation, supervision, professional development, accountability, and workload design become institutional necessities.

3. Professionalization Challenges

The first challenge is role ambiguity. Officially, the 2025 framework emphasizes support for student initiatives and participation, while the recruitment assessment also covers student support, career guidance, higher-education guidance, projects, training, networks, and decision-making in difficult situations. Together, these functions point toward a broad student-success role, but the boundaries among school counseling, psychology, administration, extracurricular coordination, and other school functions

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remain insufficiently explicit. Without a shared definition, the same job title can produce very different expectations across schools.

This variation is already visible across school contexts. In specialized schools, counselors may devote substantial attention to academic planning, international university admissions, scholarships, and postsecondary pathways. In general education schools, the role may be more strongly associated with student initiatives, extracurricular activities, and social participation. Local adaptation is reasonable, but a national profession still requires a common core of responsibilities, competencies, and ethical expectations so that students receive a recognizable level of service regardless of school type.

A second challenge is the distinction between school counseling and school psychology. The two functions should collaborate closely, but they are not interchangeable. A school-counseling model can focus on academic planning, career development, postsecondary preparation, educational opportunity, student engagement, and transitions, while psychological services require a different set of professional competencies and should remain within the appropriate psychological framework. Clear boundaries are therefore necessary not to create institutional silos, but to make collaboration safer and more effective.

The preferred policy direction is a multidisciplinary student-support model with explicit referral pathways. Counselors should know which concerns they can address through advising and planning, when collaboration with teachers or administrators is appropriate, and when a student should be referred to a psychologist or another specialist. This kind of role clarity protects students, reduces duplication, and gives both counselors and psychologists a more coherent professional identity within the school.

A third challenge is role overload. In practice, counselors can be drawn into event administration, communications, social media, design, information technology, or other duties created by staffing gaps. The problem is not simply that these tasks fall outside the counselor's core function; it is that they carry a direct opportunity cost. Time spent on unrelated administration is time unavailable for student advising, academic planning, career guidance, parent consultation, or analysis of student needs.

International evidence reinforces the importance of protecting counselors' professional time. The American School Counselor Association recommends a student-to-school-counselor ratio of 250:1 and recommends that at least 80 percent of counselor time be devoted to direct and indirect student services. Uzbekistan should not simply import either benchmark, because local staffing models and institutional conditions differ. The more transferable principle is that caseload and workload must be designed together, with enough protected time for the work that directly supports students.

4. Lessons from Selected International Models

International systems demonstrate that guidance is most effective when it is institutionalized rather than treated as an informal additional duty. The United States, Finland, and Australia differ in structure, but several common principles emerge: guidance is connected to educational outcomes; roles are defined; student data inform planning; professional development is continuous; and transitions to further education and work are treated as core student-development concerns.

In the United States, the American School Counselor Association's National Model provides a useful reference point because it treats school counseling as a comprehensive, data-informed, systematic, and developmental program connected to academic and postsecondary success. The model emphasizes defining, managing, delivering, and assessing counseling programs, while also identifying activities that do not align with the counselor's professional role. A synthesis of six statewide U.S. studies likewise reported evidence linking school-counseling program organization, student-to-school-counselor ratios, counselor time use, and specific counseling activities with positive educational outcomes (Carey & Dimmitt, 2012).

Finland provides a different but equally relevant example because guidance and counseling are integrated across educational stages. The Finnish National Agency for Education states that every pupil is entitled to guidance during school days, with support extending to school completion, study progression,

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life planning, further study, working life, and participation. In grades 7–9, the guidance counselor has the main responsibility for guidance counseling, and schools maintain guidance plans that define activities, responsibilities, transition points, and cooperation with stakeholders.

Finland's national Criteria for Good Guidance add an important equity dimension by emphasizing quality and equal access regardless of a student's location or circumstances. This principle is particularly relevant to Uzbekistan as the counselor role expands nationally. The policy challenge is not only to make guidance available, but to make the quality and scope of that guidance less dependent on the individual school, region, or practitioner.

Australia's Student Wellbeing Framework illustrates a third principle: student support is a whole-school responsibility supported by clear policy infrastructure. The framework emphasizes leadership, inclusion, safety, respect, resilience, and positive learning environments. For Uzbekistan, the lesson is not to reproduce the Australian system, but to place counselors within a coordinated school-wide support structure rather than expecting one professional to address every academic, social, psychological, and administrative need.

5. Key Policy Gaps in Uzbekistan

The current system reveals six interconnected gaps that are better addressed through policy than through informal local practice. The first two concern professional standards and preparation. Uzbekistan needs a national competency and ethical framework that specifies what school counselors are expected—and not expected—to do, including responsibilities, rights, confidentiality, referral principles, collaboration with psychologists and teachers, data use, and expected program outcomes. Recruitment testing is an important entry mechanism, but it is not a complete preparation system. Professionalization also requires a pathway from entry to advanced practice through postgraduate certificates, professional retraining, and, over time, specialized master's-level preparation in school counseling, educational guidance, or student success.

A second pair of gaps concerns continuous professional development and workload. A counselor's learning cannot end at recruitment; annual training should cover case consultation, peer mentoring, data-informed practice, career guidance, university admissions, safeguarding, student development, and changing labor-market conditions. At the same time, the system should distinguish caseload from workload. Two counselors serving the same number of students can face very different professional demands if one is also assigned substantial administrative work. A national framework should therefore combine staffing principles with protection of a defined proportion of counselor time for student-facing and programmatic responsibilities.

The final two gaps concern data, accountability, and professional infrastructure. Counseling should become increasingly data-informed through indicators such as attendance, academic progress, graduation, postsecondary applications and enrollment, participation in career planning, student engagement, parent satisfaction, and counselor professional-development hours. The purpose is not to reduce counseling to numerical targets, but to give the system a basis for learning and improvement. A rapidly expanding profession also needs a durable professional community. Informal communication networks can circulate instructions quickly, but they do not by themselves create a sustained knowledge base; a national professional platform and representative council could provide that infrastructure.

6. Proposed Student Success Model

The proposed policy framework is organized around a Student Success pathway in which the school counselor serves as a coordinating link between a student's current school experience and future educational and employment decisions (Figure 1). The pathway is not intended to imply that progress is perfectly linear; rather, it identifies the major transition points at which structured guidance can reduce fragmentation and help students make informed choices.

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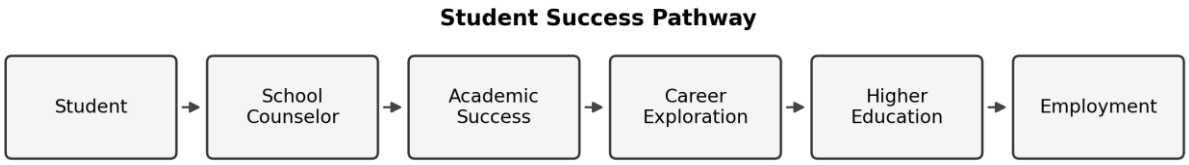


Figure 1. Proposed Student Success pathway for Uzbekistan.

Source: Author's conceptualization based on the Student Success model proposed in this paper.

This model broadens the policy objective from helping students complete secondary education to helping them navigate the decisions that follow it. It also provides a clearer rationale for the counselor's role: the counselor can connect academic planning, career exploration, higher-education preparation, and future employment choices that are often handled separately. A coordinated pathway can make educational opportunity more understandable and actionable for students and families.

The model does not mean that counselors should replace teachers, psychologists, career-service agencies, universities, or employers. Their role is better understood as coordination within a multidisciplinary ecosystem: providing guidance where they have professional competence, connecting students to relevant information and opportunities, and referring cases that require another specialist. This interpretation keeps the counselor's role broad enough to support student success without turning it into an undefined catch-all position.

7. Policy Recommendations

The first priority is to establish a National School Counseling Standards Framework with meaningful participation from experienced practicing counselors, education policymakers, psychologists, school leaders, and higher-education experts. The standards should define competencies, role boundaries, ethical expectations, service delivery, data use, referral practice, and accountability. A representative National School Counselors Council or professional association should support this framework by giving practitioners a professional voice and a mechanism for standards development, ethical guidance, research, mentoring, and continuing education. Representation should include both specialized and general education schools and reflect all regions of Uzbekistan.

A second priority is to create a transparent professional pathway from entry to advanced practice. A Junior/Senior certification structure could distinguish entry-level competence from advanced practice, mentoring, program evaluation, and leadership, with renewal linked to continuing professional development rather than a one-time credential. Certification should be supported by formal academic preparation. Uzbekistan could begin with postgraduate certificates or one-year professional retraining programs in school counseling, educational guidance, career development, or student success and later develop specialized master's programs as the profession matures.

A third priority is to build professional learning infrastructure. A national digital platform could provide methodological resources, case discussions, professional-development materials, university and scholarship information, career resources, templates, and peer communication. Its purpose should be to create a shared professional knowledge base, not simply another channel for administrative instructions. The platform could also support structured continuing professional development, helping counselors update their practice as admissions systems, labor-market information, safeguarding expectations, and student needs change.

A fourth priority is to protect professional time by defining core and non-core responsibilities alongside the standards. Counselors should not routinely become substitutes for vacant administrative, communications, design, information-technology, or unrelated positions because such assignments reduce the time available for student guidance. This recommendation is also informed by practitioner experience.

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In 2024, I established a counselor-oriented platform to facilitate communication and knowledge sharing, and in 2025 I developed the concept of MyWay—Mening Yo‘lim to help students access information about university admissions and educational opportunities. Although these initiatives were constrained by resources, they indicated demand for more structured digital guidance and suggest a principle that could be scaled institutionally.

8. Proposed Implementation Roadmap, 2028–2030

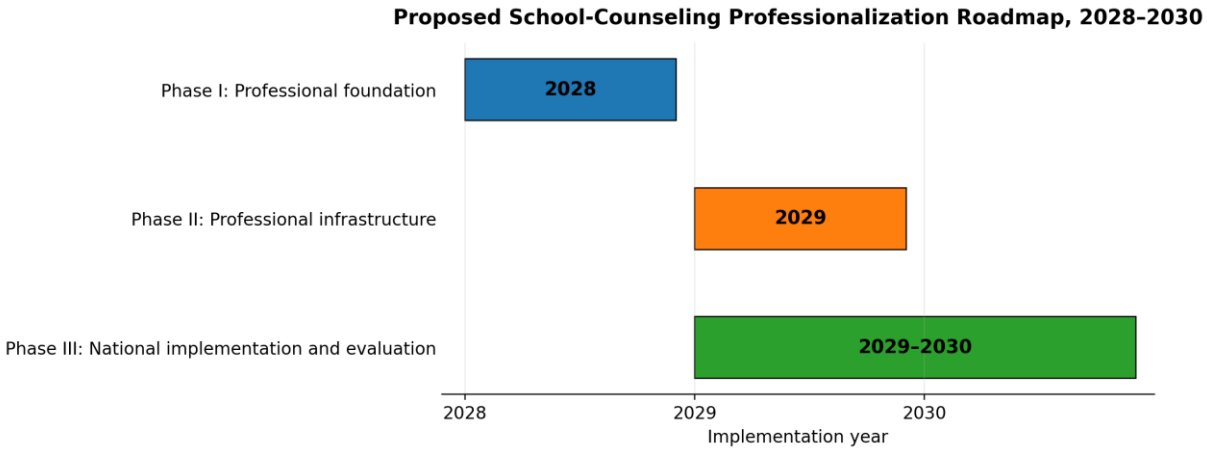


Chart 1. Proposed phased roadmap for school-counseling professionalization, 2028–2030.

Source: Author’s synthesis of the implementation sequence proposed in this paper.

Phase I, proposed for 2028, would establish the professional foundation. The government and relevant education bodies would convene a national School Counseling Forum, establish an interim representative professional council, map counselor competencies and role boundaries, draft national professional and ethical standards, and conduct a national workload and caseload study. This phase is intentionally diagnostic and standards-focused: the system should first define the profession and understand its operating conditions before introducing large-scale certification or evaluation requirements.

Phase II, proposed for 2029, would build the professional infrastructure needed to put the standards into practice. This stage would pilot Junior and Senior certification, publish national methodological guidance and case-based resources, launch the national digital professional platform, establish continuing professional development requirements, and begin postgraduate or professional preparation pathways. The central objective would be to give counselors practical tools, learning structures, and a credible pathway for professional growth rather than relying on informal mentoring alone.

Phase III, proposed for 2029–2030, would move from piloting to national implementation and evaluation. The standards would be implemented nationally while policymakers monitor workload, access, and service quality, introduce outcome-based program evaluation, refine certification and continuing professional development requirements in response to evidence, and publish an annual national school counseling report. The dates should be treated as a policy roadmap rather than fixed administrative deadlines; the essential principle is sequencing, with standards preceding large-scale certification, training supporting the standards, digital infrastructure supporting implementation, and evaluation informing later revision.

9. Evaluation and Accountability

The success of school counseling should not be measured simply by the number of counselors appointed. A stronger accountability framework would ask whether students actually receive meaningful guidance and whether that guidance improves access to opportunities and transitions beyond school. Evaluation should therefore combine service-delivery measures with student and program outcomes, while avoiding a narrow target culture that encourages counselors to optimize numbers rather than improve support.

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Possible national indicators include the counselor-to-student ratio, the proportion of counselor time devoted to student services, the percentage of students with academic or career plans, participation in postsecondary planning, application and enrollment patterns, student and parent satisfaction, professional-development participation, referral and collaboration patterns, and counselor retention. These indicators should be interpreted together because no single measure captures counseling quality. Used carefully, they can show whether access is equitable, whether counselors are able to perform their core role, and whether programs are improving over time.

This approach is consistent with the data-informed orientation of the ASCA National Model, which emphasizes program impact rather than the simple counting of activities. For Uzbekistan, the value of a national evaluation framework would be its ability to support learning: identifying where implementation is strong, where counselors are overloaded or underprepared, and where additional policy support is needed.

10. Conclusion

Uzbekistan has reached an important turning point. The country has moved from a small emerging school-counseling function toward a nationally expanding position. The next stage should therefore focus not simply on appointing more counselors, but on professionalizing the role through clear standards, preparation, protected responsibilities, professional learning, and accountable implementation.

The central policy questions are institutional: What standards define the profession? What preparation should a counselor receive? Which responsibilities belong to the counselor and which belong to the psychologist or other school staff? How should workload be managed? How should professional growth be recognized? What evidence should demonstrate impact? And what institution should represent and develop the profession? Addressing these questions together is more important than expanding any single reform instrument in isolation.

International experience demonstrates that effective guidance systems depend on more than individual professionals. They depend on frameworks, standards, professional learning, role clarity, data, and institutional support. Uzbekistan does not need to copy any one model. It can draw from these principles while developing a system that reflects its own educational structure, policy priorities, and emerging experience with school counseling.

The central proposal of this paper is to position the school counselor within a national Student Success system that connects academic development, career exploration, higher education, and future employment. If implemented carefully, this framework could transform school counseling from a newly introduced position into a mature educational profession with a clear purpose, defined boundaries, and a stronger capacity to support students across major transitions.

The ultimate objective is not to strengthen the profession for its own sake. It is to make educational opportunity more navigable and more equitable for students. A school counselor should do more than help a student complete school; the counselor should help the student understand what can come next, evaluate realistic options, and build a pathway toward them.

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ORGANIZATIONAL-PEDAGOGICAL MODEL FOR IMPROVING THE QUALITY OF EDUCATION IN GENERAL SECONDARY SCHOOLS AND ITS EXPERIMENTAL RESULTS

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ABSTRACT
This article presents the author's organizational-pedagogical model for improving the quality of education in general secondary schools and the results of its experimental testing. The model covers 6 blocks (normative-legal, managerial, monitoring, personnel, material-technical, and socio-psychological) and ensures their interrelationship and continuity. The experimental work was conducted in the 2024-2025 academic year with the participation of 10 schools (5 experimental, 5 control), 270 pedagogical and managerial staff, and 300 9th-grade students. The results showed that in the experimental group, the educational quality index increased from 58.4% to 80.0% (Δ=+21.6%), while in the control group it increased by only 1.8%. The statistical significance of the differences is confirmed by Student's t-test ($t(calc)=4.82 > t(table)=2.78$; $p < .01$) and Pearson's χ^2 test ($\chi^2(calc)=8.94 > \chi^2(table)=7.82$; $p < .05$).

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Keywords:
organizational-pedagogical model, quality of education, experimental work, school management, statistical analysis, Student's test, Pearson's test.

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Introduction

The problem of managing the quality of education is today one of the most pressing directions in pedagogy and educational management science. The reforms being carried out in Uzbekistan — the newly amended Constitution (Article 50), the Law "On Education" (No. O'RQ-637), and the "Uzbekistan – 2030" strategy (Decree No. PF-158) — require the introduction of modern mechanisms for managing the quality of education in schools (Constitution of the Republic of Uzbekistan, 2023; Decree of the President of the Republic of Uzbekistan No. PF-158, 2023). However, practice shows that school management is still based on traditional-administrative methods, which hinders the improvement of educational quality (Potashnik, 2000; Shamova et al., 2002).

In our previous studies (Jo‘rayev, 2025a, 2025b), the theoretical and methodological foundations of educational quality management were analyzed, and the current situation in Uzbek schools as well as foreign experience were examined. Based on these studies, an organizational-pedagogical model for improving the quality of education in general secondary schools was developed. This article presents the structure, content, and experimental results of this particular model.

The purpose of the article is to statistically prove the effectiveness of the proposed organizational-pedagogical model based on the results of experimental testing.

Methodology

During the study, the following organizational-pedagogical model, consisting of 6 blocks, was developed for improving the quality of education in general secondary schools.

Table 1

Blocks of the Proposed Organizational-Pedagogical Model and Their Content

Block name	Processes covered	Implementation mechanisms
1. Normative-legal block	Improving the state educational standard, curricula, internal regulations, job descriptions	Adapting documents to modern requirements, converting to digital format
2. Management block	Planning, organizing, delegating, motivating, monitoring	Introducing a KPI system, distributing authority, democratic management methods
3. Monitoring and assessment block	Cross-sectional assessments, surveys, lesson analyses, statistical reports	Comprehensive assessment based on the "conditions – process – result" index, digital platforms
4. Personnel potential block	Professional development, methodological services, mentor-mentee relationships, coaching	Continuous development of pedagogical competencies, activating the work of methodological associations
5. Material-technical block	ICT, laboratories, library, equipment	Providing modern educational equipment, creating digital resources
6. Socio-psychological block	Motivation, team atmosphere, school-family-community cooperation	Incentive system for teachers and students, psychological support

The main principles of the model are: systematicity, process orientation, consistency, adaptability, and result orientation. All blocks are closely interconnected, and their joint functioning ensures the systematic growth of educational quality.

The experimental testing was conducted during the 2024-2025 academic year in 10 general secondary schools from 3 regions of Uzbekistan (Tashkent city, Tashkent region, Surkhandarya region). Five schools were assigned to the experimental group (EG) and five to the control group (CG), and their initial conditions were made as similar as possible (Novikov, 2004). A total of 270 pedagogical and managerial staff (10 directors, 10 deputy directors for educational affairs, 10 deputy directors for spiritual-educational affairs, 40 heads of methodological associations, 200 teachers) and 300 9th-grade students were involved in the study.

The experiment was organized in 3 stages:

1. Ascertaining stage — the initial state of both groups was diagnosed based on the "conditions – process – result" triad.

2. Formative stage — all 6 blocks of the proposed model were introduced step by step only in the experimental group (over 6 months). Traditional management methods were maintained in the control group.

3. Control stage — the dynamics of changes in both groups were re-measured and compared.

Four types of diagnostic tools were used during the experimental testing: for leaders the "Assessment of the Effectiveness of Educational Management" questionnaire (5-point Likert scale); for heads of methodological associations case questions and a checklist; for teachers the anonymous "Professional Motivation and Organizational-Pedagogical Conditions" questionnaire (10-point scale); for 9th-grade students competency-oriented test examinations (100-point scale).

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The normality of the data distribution was checked using the Shapiro-Wilk test. Student's t-test and Pearson's χ^2 test were used to determine the reliability of differences between the groups (confidence level $p \leq .05$) (Gmurman, 2003; Sidorenko, 2002). The data were processed in SPSS.

Results and Discussion

Diagnosis of the Initial State (Ascertaining Stage)

At the ascertaining stage, the current state of educational quality in both groups was assessed. Table 2 below presents the results of the initial measurement.

Table 2

Initial Educational Quality Indicators in the Experimental and Control Groups (%)

Components	Experimental group (EG)	Control group (CG)	Difference
Condition quality	62.4	61.8	+0.6
Process quality	54.2	55.1	-0.9
Result quality	58.7	59.2	-0.5
Overall index	58.4	58.7	-0.3

The table data show that the differences between the experimental and control groups for all indicators range from 0.5% to 0.9%, which is not statistically significant. This indicates that the initial state of both groups was almost identical, meaning that subsequent changes could be attributed to the proposed model.

It was also found that in both groups, "process quality" (54.2% and 55.1%) and "result quality" (58.7% and 59.2%) lagged noticeably behind "condition quality" (62.4% and 61.8%). This shows that although the material-technical base in schools is relatively good, insufficient attention is paid to management processes and final results.

At the formative stage, all 6 blocks of the model were introduced in the experimental group schools. As a result of the work carried out over 6 months, the following changes occurred.

Table 3

Comparative Analysis of the Experimental Testing Results (Ascertaining and Control Stages)

Group	Stage	Condition quality	Process quality	Result quality	Overall index	Difference (Δ)
EG	Ascertaining	62.4	54.2	58.7	58.4	-
EG	Control	78.6	82.3	79.1	80.0	+21.6
CG	Ascertaining	61.8	55.1	59.2	58.7	-
CG	Control	63.2	57.4	60.8	60.5	+1.8

Table 3 shows that in the experimental group, the overall educational quality index rose from 58.4% to 80.0% (Δ=+21.6%). In the control group, it increased from only 58.7% to 60.5% (Δ=+1.8%). The largest increase in the experimental group was observed in the "process quality" indicator (from 54.2% to 82.3%, i.e., +28.1%). "Result quality" increased from 58.7% to 79.1% (+20.4%), and "condition quality" increased from 62.4% to 78.6% (+16.2%).

It is notable that "condition quality" also increased in the experimental group (62.4% → 78.6%). This means that the model had a positive effect not only on the process and results but also on improving conditions. In particular, the increase in time and methodological resources allocated to teachers' professional development, and the introduction of digital monitoring tools, improved the quality of conditions.

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A detailed analysis of the changes in the experimental group showed that each of the 6 blocks of the model had its own specific effect.

Table 4

Changes in the Experimental Group by Model Blocks

Block name	Ascertaining stage (%)	Control stage (%)	Change (Δ)
Normative-legal block	65.2	78.4	+13.2
Management block	52.8	81.5	+28.7
Monitoring and assessment block	50.3	79.8	+29.5
Personnel potential block	56.7	82.1	+25.4
Material-technical block	63.4	77.6	+14.2
Socio-psychological block	51.9	80.3	+28.4

Table 4 shows that the largest increase was observed in the monitoring and assessment block (+29.5%), the management block (+28.7%), and the socio-psychological block (+28.4%). This can be explained as follows. Monitoring and assessment block the introduction of a digital monitoring system and comprehensive assessment based on the "conditions – process – result" triad sharply increased the effectiveness of control. Management block the delegation of authority and the introduction of a KPI system helped the director and deputies organize their work more effectively. Socio-psychological block the fairness of the teacher incentive system and a healthy team atmosphere increased their motivation.

The results of competency-oriented test examinations for 9th-grade students showed the following dynamics.

Table 5

Dynamics of 9th-Grade Students' Test Results (%)

Group	Stage	Basic knowledge	Practical competence	Critical thinking	Overall result
EG	Ascertaining	62.3	54.8	56.2	57.8
EG	Control	81.7	78.5	76.9	79.1
CG	Ascertaining	63.1	55.4	57.3	58.6
CG	Control	64.8	57.2	59.1	60.4

Table 5 shows that the overall test result of students in the experimental group increased from 57.8% to 79.1% (Δ=+21.3%). The largest increase was observed in the "critical thinking" competency (56.2% → 76.9%, Δ=+20.7%). In the control group, the changes were very small (58.6% → 60.4%, Δ=+1.8%).

These results confirm that the model had a positive effect not only on management and pedagogical processes but also directly on the knowledge quality and competencies of the students.

A mathematical-statistical analysis was carried out to prove that the results obtained were not accidental but a regularity.

Student's t-test was used to determine the reliability of the difference between the mean indicators of the two independent samples (EG and CG). For the difference between the overall indices of EG and CG at the control stage:

t(calc) = 4.82

Degrees of freedom df = 8 (n1=5, n2=5)

For confidence level $p \leq 0.01$, t(table) = 2.78

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Since t(calc) (4.82) > t(table) (2.78) ($p < 0.01$), the difference between the experimental and control groups was found to be statistically highly reliable.

Pearson's χ^2 test. Pearson's χ^2 test was used to assess the difference in the distribution of teachers' and leaders' performance effectiveness levels (high, medium, low). At the control stage, the share of teachers with a "high level" in the experimental group increased from 32% to 71%, while in the control group this indicator changed from 34% to 38%. Calculated:

$\chi^2(calc) = 8.94$

For $df = 2$, $p < 0.05$, $\chi^2(table) = 7.82$

Since $\chi^2(calc)$ (8.94) > $\chi^2(table)$ (7.82) ($p < 0.05$), the difference in distribution between the groups is also statistically reliable.

Based on the results obtained and the statistical analyses, the following important aspects should be noted. First, the sharp changes in the experimental group (Δ=+21.6%) are explained by the complex effect of the model. Success was achieved not by individual elements of the model, but by the systematic application of all 6 blocks together, complementing one another. For example, delegation in the management block increased the activity of the heads of methodological associations (their work activity increased by 40%), while digital systems in the monitoring block ensured the objectivity of decisions.

Second, the 28.1% increase in "process quality" (54.2→82.3) is noteworthy. This shows that innovations in the working relationships between school leaders and teachers (subject-subject) and in the organization of lesson processes yielded the greatest effect. In particular, the ISO 9000 principles of "process approach" and "fact-based decision making" were the principles that yielded the fastest positive results in school practice (Deming, 2011).

Third, the very small increase in the control group (Δ=+1.8%) once again proved the inefficiency of traditional management methods. Here too, although the material-technical base (conditions) improved somewhat, the process and result indicators remained almost unchanged. This shows that "conditions" alone are not sufficient, and they must be developed in proportion to management and pedagogical processes.

Fourth, all blocks of the model are interconnected and complement one another. For example, the improvement of the monitoring block (a 29.5% increase) in turn had a positive effect on the management block (by providing accurate data for decisions) and the personnel block (by identifying teachers' shortcomings and directing efforts to address them). This confirms the systemic nature of the model.

Fifth, the positive changes in student results (from 57.8% to 79.1% in EG) show that the model achieved its ultimate goal improving the knowledge quality and competencies of learners. This confirms that the final criterion of any change in educational management is student competence (Bolotov & Efremova, 2007).

Conclusion

Based on the theoretical research and experimental testing conducted, the following conclusions were reached:

The educational quality index in the experimental group increased from 58.4% to 80.0% (Δ=+21.6%), while in the control group it increased by only 1.8%. The statistical reliability of the difference was confirmed by Student's t-test ($p < .01$) and Pearson's χ^2 test ($p < .05$).

The largest increase was observed in the monitoring and assessment block (+29.5%), the management block (+28.7%), and the socio-psychological block (+28.4%). This shows that digital monitoring, delegation of authority, and the teacher incentive system are the most effective mechanisms for improving educational quality.

The test results of 9th-grade students in the experimental group increased from 57.8% to 79.1%. In particular, the growth in "critical thinking" competency (56.2% → 76.9%, Δ=+20.7%) shows that the model served not only to impart knowledge but also to develop higher-order thinking in students.

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The experimental testing was conducted in schools with various socio-economic conditions (large city, remote area, district center, village), and positive results were recorded in all of them. This shows that the model can be applied in all regions of the republic.

In the experimental group, leaders' time-management indicators improved (bureaucratic workload decreased by 30%), and the activity of heads of methodological associations increased by 40%. This created an opportunity for the efficient use of school resources.

In the future, it is planned to continue research on the large-scale implementation of this model in all regions of the republic, developing adaptation mechanisms that take into account the specific characteristics of each school, as well as creating a remote monitoring system based on artificial intelligence and Big Data technologies.

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ATTITUDES AND MOTIVATION FOR LEARNING ENGLISH WITH TECHNOLOGY-ENHANCED INSTRUCTION AMONG HIGH SCHOOL STUDENTS

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ABSTRACT

This study examines attitudes and motivation for learning English with technology-enhanced instruction among high school students in Uzbekistan. A quasi-experimental design with 370 students (grades 10–11) from secondary schools in Khorezm, Kashkadarya and Tashkent compared an experimental group (n = 185) using an author-developed digital homework application based on Prepare Grade 10/11 Workbooks and online resources with a control group (n = 185) receiving traditional textbook instruction. Motivation was assessed via a four-criterion scale (cognitive interest, lesson participation, stability of motivation, willingness to use digital tools; each 0–3; total 0–12; Cronbach's α = 0.84). Pre- and post-test data were analysed with paired and independent-samples t-tests. Results showed statistically significant gains in the experimental group on total motivation score Homework completion with digital tools rose from 28% to 61% in the experimental group. Semi-structured interviews with 24 students and 6 teachers corroborated quantitative findings, revealing themes of increased autonomy, task value and self-efficacy. The study supports hybrid teacher-plus-technology models and calls for longitudinal research with standardised instruments.

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Keywords: *motivation, technology-supported pedagogy, AI-supported tools, digital storytelling, instructional strategy, quasi-experiment, Uzbekistan.*

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Introduction

English learning in Uzbek school systems is situated within broader developments in foreign language education and changing socio-cultural conditions. In schools in Uzbekistan, attention has often focused on grammar and vocabulary, receptive and productive skills, yet these studies provide an important template for understanding how compulsory and optional language provision, curricular structures, and autonomy support shape adolescents' motivational profiles. Work with secondary learners in Uzbekistan shows that motivation for language learning is closely tied to perceptions of teacher autonomy support and to curriculum policies that provide meaningful choice, with motivation declining as students progress through year groups and perceive reduced autonomy in later compulsory years (Parrish et al., 2024). Such findings underscore how institutional arrangements and classroom practices can either sustain or erode willingness to engage with language learning across secondary education.

Conceptual work on motivation in language education characterises motivation as complex, dynamic, and embedded in life orientation and self-determination rather than as a static trait. Motivation is framed as the underlying force that guides individual, social, and professional practices, and in teaching English as a Foreign Language it is directly linked to students' motives and enjoyment in participating in learning activities. This perspective highlights students' willingness to immerse themselves in learning as

central to navigating the challenges of acquiring a second or foreign language, and emphasises that motivation is intertwined with learning engagement and shapes how learners pursue and achieve academic goals (Dörnyei & Ushioda, 2010; Phan, 2025). In high school EFL settings, motivation can therefore be understood as the set of motives driving students to learn English in order to enhance academic performance and outcomes, as English is one of the core subjects while passing the entrance exams in higher educational institutions in Uzbekistan.

Technology use in high school English classrooms can be examined through functional classifications of tools and pedagogical integration levels. One review groups educational technologies into eight categories based on their functions: collaborative tools that support co-editing and information sharing, social tools that enable synchronous or asynchronous communication with text, audio, and video, creative tools for producing digital stories or videos, learning management systems that integrate activities and resources, classroom interaction tools for quizzes and polling, multimedia materials as audio and video resources, and presentation tools for digital display of content (Shadiev & Wang, 2022). Within language learning, mobile applications such as Duolingo and Ibrat Academy for local learners provide structured practice in listening, writing, reading, and speaking, often using immersive techniques, adaptive recall, and speech recognition to support pronunciation and concept retention. Alongside apps, online language courses and language exchange platforms extend technology integration by offering performance-based tasks aligned with language standards and by creating social spaces in which learners interact with proficient speakers through chat, email, or phone across defined modes of interaction (Kakembo, 2024).

Production-oriented activities play a central role in many technology-supported EFL environments. Creative work-based language learning tasks frequently revolve around creating digital stories or videos, typically involving group communication about the project, information collection and processing, authoring of the story or script, and sharing and discussion of the resulting products. These activities draw on tools such as Photo Story, Windows Movie Maker, iMovie, Prezi, blogs, and classroom management platforms and are associated with development of communication, collaboration, creativity and innovation, problem solving, critical thinking, digital literacy, and social and cross-cultural interaction, alongside improvements in language skills including speaking, listening, reading, writing, vocabulary and grammar (Shadiev & Wang, 2022).

Methods

Research Design

The study employed a quasi-experimental pre-test/post-test control-group design combined with a qualitative component. The quantitative strand tested the effectiveness of a developed methodology for fostering motivation to learn English among students in grades 10–11 based on the integration of an author-developed digital application for homework (aligned with Prepare Grade 10 and Grade 11 Workbooks) and selected online resources. The qualitative strand used semi-structured interviews to explore students' and teachers' perceptions of the intervention. The experiment consisted of three stages: ascertaining (pre-test), forming (intervention), and controlling (post-test).

Participants

The study was conducted in secondary schools of the Republic of Uzbekistan (Khorezm region, Kashkadarya region and the city of Tashkent). A total of 370 students in grades 10–11, aged 16–17, participated. Students were assigned to experimental (EG) and control (CG) groups as shown in Table 1. The sample included students with varying levels of academic achievement and initial motivation, supporting representativeness.

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Table 1

Distribution of Participants by Grade and Group

Grade	Experimental Group (EG)	Control Group (CG)	Total
Grade 10	120	115	235
Grade 11	65	70	135
Total	185	185	370

Note. EG = experimental group; CG = control group.

The experimental groups were trained using the developed methodology, which included the author's digital application for homework based on Prepare Grade 10/11 Workbooks and supplementary online resources (Kahoot, Quizlet, Bamboozle and selected multimedia materials). The control groups followed the traditional methodology using the Prepare Grade 10/11 Student Books and Workbooks without systematic digital technology integration.

Instruments

Motivation was measured with a researcher-developed four-criterion scale (Table 2). Each criterion was scored on a 0–3 point scale; the total motivation score ranged from 0 to 12. Score interpretation: 0–3 = low motivation, 4–6 = medium-low, 7–9 = medium-high, 10–12 = high motivation. Internal consistency reliability for the scale in the present sample was Cronbach's $\alpha = 0.84$ (pre-test) and $\alpha = 0.87$ (post-test), indicating acceptable to good reliability. Content validity was established through expert review by three university specialists in EFL methodology and educational psychology. A short questionnaire containing both closed and open-ended items was administered via Google Forms to assess technical readiness, interest in lessons, and attitudes toward digital technologies. Cognitive and emotional components of motivation were targeted.

Table 2

Criteria for Assessing the Level of Student Motivation

Criterion	Description	Point scale
Cognitive interest	Showing interest in learning new material and exploring English beyond compulsory tasks	0–3
Participation in the lesson	Active participation in group and pair work, discussions and oral tasks	0–3
Stability of motivation	Persistence of interest and effort over an extended period	0–3
Use of digital tools	Willingness and actual use of the digital application, Kahoot, Quizlet, Bamboozle and related tools	0–3

In addition, the proportion of homework assignments completed with digital technology was recorded at pre- and post-test. Semi-structured interviews were conducted with a purposive subsample of 24 students (12 EG, 12 CG; balanced by grade and achievement level) and 6 teachers who implemented the intervention. Interviews lasted 25–40 minutes, were audio-recorded with permission, conducted in the participants' first language (Uzbek or Russian), transcribed, translated into English, and subjected to member checking. Investigator triangulation and peer debriefing were used to enhance credibility. Thematic analysis followed the recursive stages described by Braun and Clarke (familiarisation, coding, theme generation, review, definition and naming, and report production).

Procedure and Data Analysis

Before the intervention, a readiness survey confirmed that all experimental-group students possessed personal mobile devices and internet access and expressed willingness to use the digital application. The ascertaining stage established baseline motivation and knowledge levels. The forming

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stage lasted one academic term (approximately 12–14 weeks). The controlling stage repeated the motivation assessment and recorded digital homework completion rates. Quantitative data were analysed with paired-samples t-tests (within-group change) and independent-samples t-tests (between-group differences) using SPSS 26. Effect sizes were reported as Cohen's d. Significance was set at $\alpha = .05$ (two-tailed). Qualitative data were analysed thematically as described above.

Results

Quantitative Findings

All experimental-group students reported technical and psychological readiness for the digital intervention. Pre-test total motivation scores did not differ significantly between groups (EG: $M = 5.82$, $SD = 1.94$; CG: $M = 5.76$, $SD = 1.89$; $t(368) = 0.30$, $p = .764$), confirming baseline equivalence.

At post-test the experimental group showed a large and statistically significant increase in total motivation score (Table 3). The control group exhibited a small but statistically significant increase, attributable to normal instructional experience over the term. The between-group difference at post-test was highly significant and of large effect size.

Table 3

Pretest and Posttest Total Motivation Scores (0–12 Scale)

Group	Pre-test *M* (*SD*)	Post-test *M* (*SD*)	*t* (*df*)	*p* / Cohen's *d*
EG (*n* = 185)	5.82 (1.94)	9.41 (1.67)	21.36 (184)	< .001 / 1.57
CG (*n* = 185)	5.76 (1.89)	6.48 (1.91)	4.12 (184)	< .001 / 0.30
EG vs CG post	—	—	15.87 (368)	< .001 / 1.65

Note. *M* = mean; *SD* = standard deviation; EG = experimental group; CG = control group.

Criterion-level analysis (Table 4) indicated that the largest gains in the experimental group occurred on "Use of digital tools" and "Cognitive interest," followed by "Participation" and "Stability of motivation." Control-group changes on individual criteria were small.

Table 4

Mean Scores by Motivation Criterion (0–3 Scale)

Criterion	EG Pre	EG Post	CG Pre	CG Post
Cognitive interest	1.48	2.51	1.45	1.62
Participation	1.51	2.38	1.49	1.68
Stability of motivation	1.42	2.19	1.40	1.55
Use of digital tools	1.41	2.33	1.42	1.63

Note. EG = experimental group; CG = control group.

Digital homework completion. At the ascertaining stage, 28% of homework assignments in the experimental group were completed with any digital support. By the controlling stage this figure had risen to 61% (an absolute increase of 33 percentage points, corresponding to the approximate "~30%" increase reported in preliminary analyses). In the control group the corresponding figures remained low (12% pre → 15% post).

Overall, the quantitative results demonstrate that the technology-enhanced methodology produced substantial gains in cognitive interest, classroom participation, motivational stability and willingness to use digital tools, as well as a marked increase in digitally supported homework practice.

Qualitative Findings

Thematic analysis of the 24 student and 6 teacher interviews yielded four interrelated themes:

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1. **Increased autonomy and ownership.** Students repeatedly described feeling freer to organise their homework time and to choose how to present answers. One Grade 11 student stated: “I can do the exercises when I want and check myself with the app; it feels like my own work.”
2. **Heightened task value and interest.** Participants linked digital activities (especially interactive quizzes and multimedia explanations) to greater interest: “English became less boring because every task is different.”
3. **Growth in self-efficacy and confidence.** Several low-achieving students reported reduced fear of mistakes because immediate feedback from the application allowed private practice before class.
4. **Remaining barriers.** Teachers and a minority of students noted occasional network instability and the need for clearer initial training on the application interface. These constraints, however, did not outweigh the perceived benefits for most participants.

Teacher interviews confirmed that the digital application facilitated monitoring of homework completion and allowed more class time for communicative practice. Overall, qualitative data triangulated the quantitative gains and illuminated the mechanisms (autonomy support, immediate feedback, varied task formats) through which the intervention enhanced motivation.

Discussion

Classroom practice in high school EFL settings needs to respond to the finding that motivation is closely tied to students’ immediate learning experiences, self-efficacy, and opportunities for autonomy and collaboration. The present quasi-experimental results align with self-determination theory: the digital application afforded greater autonomy (choice of time and pace), competence feedback (immediate scores and explanations), and relatedness (shared digital activities), producing large gains in measured motivation (d = 1.57 within EG; d = 1.65 between groups at post-test).

Qualitative work in rural and urban school contexts shows that low-achieving students’ motivation is heavily shaped by external influences such as institutional context, family involvement, peer relationships, and broader sociocultural norms, with poor self-regulation and low self-efficacy emerging as major barriers (Phan, 2025). The interview data in this study indicate that carefully scaffolded digital tools can mitigate some of these barriers by providing private practice opportunities and reducing the public cost of error.

Transformative uses of technology, particularly fulfilling home assignments with a dedicated digital application, offer a concrete pedagogical route to strengthen motivation, critical thinking, and self-efficacy. Technology-supported pedagogy can function as replacement, amplification, or transformation; the present intervention moved beyond mere replacement by changing the nature of homework (interactive, self-paced, multimedia) and by freeing classroom time for higher-order interaction. The process of using varied apps fostered learning confidence, task value, and motivation by providing authentic scenarios linked to students’ lives and by supporting self-expression and control over the learning product.

Existing work on motivation, technology-supported pedagogy, and artificial intelligence in English language learning reveals several constraints that delimit current knowledge. Common implementation barriers reported by learners include interface difficulties, network instability, uneven group-work contributions, and limited time; these constraints can weaken gains when instructional design assumes technological fluency without explicit support. The present study addressed some of these issues through a readiness survey and brief orientation, yet residual access problems remained for a minority of students.

Limitations include the non-random assignment of intact classes, the reliance on a researcher-developed motivation scale (despite acceptable reliability), and the relatively short intervention period. Future research should employ randomised designs, validated standardised instruments, larger multi-region samples, and longitudinal follow-up to examine retention of motivational gains and differential effects across achievement levels and thinking styles.

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Conclusion

This quasi-experimental study with 370 high-school students in Uzbekistan demonstrated that integrating an author-developed digital homework application with traditional EFL instruction significantly enhanced students' motivation to learn English. The experimental group improved from a medium-low pre-test mean (M = 5.82) to a medium-high post-test mean (M = 9.41) on a 12-point motivation scale ($t(184) = 21.36$, $p < .001$, $d = 1.57$), while the control group showed only modest change. Between-group post-test differences were large ($d = 1.65$). Digitally supported homework rose from 28% to 61%. Qualitative evidence from 24 students and 6 teachers confirmed that the intervention fostered autonomy, task value and self-efficacy.

Scientific novelty lies in the empirical demonstration, within the Uzbek secondary-school context, that a carefully designed digital application aligned with existing textbooks can produce statistically robust motivational gains when embedded in a hybrid pedagogical model. Practical implications include the recommendation that teachers receive targeted professional development in digital pedagogy and that schools ensure equitable device and network access. Longitudinal, multi-site studies with standardised instruments remain necessary to establish long-term effects on language proficiency and to refine differential instructional designs for learners of varying achievement levels and cognitive styles.

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MEDIA REPRESENTATION AND INSTITUTIONAL DEVELOPMENT OF KARAKALPAK ETHNOSPORT: CULTURAL HERITAGE, COMPARATIVE MODELS, AND STRATEGIES FOR SUSTAINABLE PROMOTION

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ABSTRACT

Ethnosport has become an increasingly visible framework for safeguarding traditional games, strengthening cultural identity, and presenting local physical practices to wider national and international audiences. This paper examines the problem of limited and fragmented media representation of Karakalpak ethnosport and develops an academically grounded strategy for its sustainable promotion. Using qualitative comparative document analysis, the study synthesizes Karakalpak sources on traditional games with scholarship on ethnosport, intangible cultural heritage, sportification, and digital heritage communication, alongside official materials from Uzbekistan, the World Ethnosport Confederation, and the World Nomad Games. The analysis shows that successful ethnosport development depends on an interconnected system of community practice, documentation, institutional coordination, event organization, and continuous multimedia storytelling. Comparative cases from Uzbekistan, Kyrgyzstan, Kazakhstan, and international ethnosport networks demonstrate that festivals create visibility but do not substitute for year-round documentation and specialized journalism. For Karakalpakstan, the central challenge is therefore not simply increasing the quantity of sports news, but improving cultural context, terminology, archival continuity, and community participation in media production. The paper proposes a five-part media strategy: documentation, editorial specialization, multilingual digital distribution, educational integration, and institutional coordination. These measures can strengthen intergenerational transmission while preserving cultural specificity and avoiding excessive commercialization in contemporary society.

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Keywords: *Karakalpak ethnosport, traditional games, media representation, intangible cultural heritage, digital heritage, Central Asia.*

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Introduction

Traditional sports and folk games are more than recreational activities. They are embodied forms of knowledge through which communities reproduce social memory, physical skills, local terminology, ethical norms, and collective identity. The concept of ethnosport has provided a contemporary vocabulary for studying and organizing such practices within modern cultural and sporting institutions. Kylasov (2011) treats ethnosport as a framework for preserving and developing traditional forms of physical activity, while Bjeljac et al. (2021) locate traditional sports and games within the broader field of intangible cultural

heritage. This perspective is especially relevant in Central Asia, where wrestling, equestrian competition, knucklebone games, archery, strength contests, and team games remain connected to historical lifeways and public festivals.

The Karakalpak case deserves separate scholarly attention. Karakalpak traditional games have been documented in ethnographic and cultural publications, including research on knucklebone games and works devoted to specific folk games such as Qasharman Top (Nurmukhamedov, 1983; Shylmanov et al., 2007). However, the existence of traditional practices does not automatically guarantee their public visibility, institutional continuity, or transmission to younger generations. Mass-media coverage is therefore a critical analytical issue: media should be understood not merely as a channel for reporting competitions, but as part of the safeguarding infrastructure of living heritage.

This paper therefore asks three questions. First, what can comparative ethnosport models in Central Asia and international organizations teach Karakalpakstan about institutional visibility? Second, what are the principal weaknesses of media representation when traditional games are covered only episodically? Third, what media and institutional strategy could increase visibility while preserving cultural specificity? The paper argues that sustainable Karakalpak ethnosport requires a coordinated cycle in which community practice is documented, interpreted by culturally informed media, circulated through multilingual platforms, connected to education and festivals, and supported by institutions that maintain archives and standards.

Ethnosport, Heritage, and Media Representation

Ethnosport emerges at the intersection of sport, folklore, identity, and heritage policy. Unlike standardized global sport, traditional games are often tied to particular landscapes, seasonal celebrations, family memories, ritual contexts, and locally meaningful rules. The process of turning such practices into organized competition can increase recognition, but it can also change them. Philippe (2014), in a comparative analysis that includes Uzbek kurash, shows that traditional wrestling styles negotiate between cultural uniqueness and the standardized requirements of modern sport. This tension is fundamental for Karakalpak ethnosport: codification may be necessary for tournaments and media explanation, yet over-standardization can remove the context that makes a practice culturally distinctive.

Media intensifies this tension because it selects what becomes visible. Traditional sports may be presented as spectacular competition, as folklore, as tourism content, as national symbolism, or as community heritage. Research on digital intangible heritage demonstrates that media can broaden awareness and support transmission, but representation is never neutral. Pietrobruno (2014) shows how online video can both archive and reshape living heritage, while Khalid and Chowdhury (2018) emphasize social media's potential for awareness, knowledge building, and diffusion of intangible cultural heritage. Applied to ethnosport, these findings suggest that high-quality coverage should document rules, vocabulary, participants, oral histories, equipment, local meanings, and changes in practice—not simply winners and scores.

The World Ethnosport Confederation presents ethnosport through four principles—tradition, respect, solidarity, and peace—and defines it as sporting activity that preserves elements of local identity (World Ethnosport Confederation, n.d.). This normative framing is useful because it places cultural continuity ahead of entertainment value alone. A Karakalpak media strategy should therefore evaluate success not only through views or event attendance, but also through the accuracy of cultural representation, participation of knowledge holders, youth learning, archival quality, and the continuity of local terminology.

Method

This study uses qualitative comparative document analysis. The source base consists of: (a) Karakalpak-focused ethnographic and cultural scholarship on traditional games; (b) scholarship on ethnosport, traditional wrestling, intangible cultural heritage, and digital heritage communication; and (c)

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official institutional materials from Uzbekistan, the World Ethnosport Confederation, and the World Nomad Games. The method is interpretive rather than statistical. It does not claim to measure the total number of Karakalpak media publications or audience responses because a systematic media corpus was not available in the source material. Instead, it identifies recurring institutional and communication patterns and uses them to formulate an evidence-informed model for future media development. This distinction is important for academic validity: the conclusions are strategic propositions grounded in comparative evidence, not results of an unreported content-analysis sample.

Comparative Institutional Models in Ethnosport

Comparative experience demonstrates that ethnosport becomes visible when cultural practice is connected to durable institutions and recurring public events. Uzbekistan provides an important national framework. The presidential decree of May 25, 2022 established measures for promoting ethnosport, including regular festivals, cooperation with the World Ethnosport Confederation, public participation, tourism links, and the use of traditional games in educational contexts (President of the Republic of Uzbekistan, 2022). The first International Ethnosport Festival in Khiva in September 2023 subsequently brought together participants, international organizations, media representatives, and multiple traditional sport formats. In his address to the festival, President Shavkat Mirziyoyev emphasized the significance of national sports and folk games and the international interest generated by the event (President of the Republic of Uzbekistan, 2023). These measures show that media visibility is strongest when it is attached to policy, events, educational programming, and international partnership.

The World Nomad Games provide a second model. Anarkulov et al. (2021) interpret the Games as a mechanism for cultural representation and international image-building, not only as competition. The 2024 edition in Kazakhstan demonstrated a broad program that included asyk atu, kokpar, kurash, qazaq kuresi, toguzqumalaq, traditional archery, horseback sports, and other practices (World Nomad Games Astana 2024, 2024). The sixth World Nomad Games, held in Kyrgyzstan from August 31 to September 6, 2026, again combined ethnosport, ethnoculture, and scientific programming and drew participation from more than 100 countries (World Nomad Games, 2026). Such events create concentrated media attention and make traditional sports legible to international audiences through schedules, rules, visual identities, athlete profiles, and multilingual digital content.

For Karakalpakstan, however, direct imitation of large international festivals would be insufficient. The key transferable lesson is organizational layering. Major events operate effectively because they rest on prior work: disciplines have names and rules, organizations have designated responsibilities, websites provide structured information, archives preserve results, and media teams produce repeatable formats. Karakalpak ethnosport needs the same underlying architecture at an appropriate regional scale.

Table 1

Comparative Ethnosport Models and Their Media Implications for Karakalpakstan

Case	Institutional/event model	Representative emphasis	Media lesson for Karakalpakstan
Uzbekistan	National policy plus recurring ethnosport festivals	National sports, folk games, education, tourism	Connect regional coverage to policy, schools, festivals, and multilingual public information.
Kyrgyzstan	World Nomad Games and national traditional-sport ecosystem	Equestrian sports, wrestling, board games, cultural program	Use large events as peaks in a year-round documentation and storytelling cycle.
Kazakhstan	International mega-event with structured	Asyk atu, kokpar, qazaq kuresi, archery, toguzqumalaq	Publish clear rules, schedules, athlete profiles, results, and visual explainers.

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	digital sports information		
World Ethnosport Confederation	International network organized around shared heritage principles	Tradition, respect, solidarity, peace	Frame games as cultural heritage and social practice, not only competition.
Karakalpakstan (proposed)	Regional documentation and coordination system	Locally documented games, oral histories, school/community participation	Build a searchable archive and specialist media formats before seeking wider international recognition.

Note. Comparative synthesis based on official ethnosport and World Nomad Games materials and the literature reviewed in this paper.

The Media-Coverage Problem in the Karakalpak Context

The central weakness in Karakalpak ethnosport coverage is fragmentation. Traditional games may appear in newspapers, cultural programs, holiday reporting, school activities, or occasional television segments, yet episodic attention does not create a coherent public knowledge system. When coverage is event-centered, audiences may see that a game exists without learning its rules, historical variants, terminology, social context, or relationship to other Karakalpak practices. This limits both educational value and archival usefulness.

A second problem is category ambiguity. Terms such as national game, folk game, traditional sport, ethnosport, children's game, and ritual competition can overlap but are not identical. Inconsistent naming makes search, cataloguing, and comparative research difficult. A third problem concerns source authority. Elder practitioners, local historians, ethnographers, teachers, coaches, and community organizers hold different kinds of knowledge; responsible journalism should identify these roles and distinguish remembered practice from recently standardized competition. A fourth issue is language. Karakalpak material that remains only in one language has limited national and international discoverability, while translation without careful terminology can flatten culturally specific meanings.

These problems are not unique to Karakalpakstan. Digital-heritage research shows that wider circulation can support cultural transmission while also simplifying context (Khalid & Chowdhury, 2018; Pietrobruno, 2014). The practical implication is that media expansion must be paired with editorial standards. More content is useful only when it increases reliable knowledge and community recognition.

A Strategic Model for Sustainable Media Representation

A sustainable approach should organize ethnosport communication as a continuous editorial and heritage process rather than as occasional publicity. Figure 1 presents a proposed cycle connecting community knowledge, documentation, media translation, participation, and institutional support. The model begins with living practice because ethnosport cannot be safeguarded only in archives. Documentation then records rules, names, oral histories, equipment, places, and variants. Media translation converts this material into accessible formats without stripping away cultural context. Public circulation encourages participation and recognition; institutional support then provides resources for further documentation, education, and events.

The first priority is systematic documentation. Karakalpakstan would benefit from a digital register of traditional games with standardized entries: Karakalpak name, English and Uzbek/Russian equivalents where appropriate, game type, age group, number of participants, equipment, playing area, rules, known variants, geographic distribution, source persons, historical references, photographs, and video demonstrations. Existing scholarship on knucklebone games and Qasharman Top provides a starting point (Nurmukhamedov, 1983; Shylmanov et al., 2007), but the register should be community-reviewed and expandable. Such a database could later support an encyclopedia of Karakalpak national games.

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The second priority is specialized journalism. Sports reporters often know competition structures but may not know ethnographic context; cultural journalists may understand heritage but not rules or performance technique. A small cross-disciplinary editorial group could develop a style guide for names, transliteration, historical claims, interview practice, and captions. Regular formats could include "Game of the Week," athlete and elder profiles, rule explainers, archival photographs with commentary, school demonstrations, short documentary episodes, and comparative pieces linking Karakalpak games with related Central Asian traditions. The aim would be to create continuity and recognizable public genres.

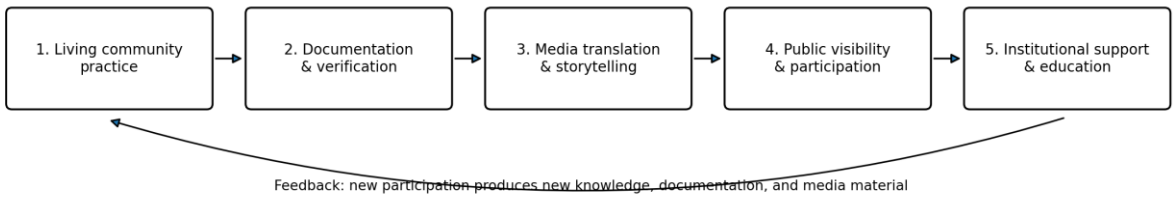
Third, distribution should be multilingual and platform-specific. Long-form newspaper or web articles can preserve historical context; television and YouTube can demonstrate movement and rules; short video can attract younger audiences; podcasts can capture oral history; social media cards can explain vocabulary and event schedules. One master research file should feed multiple formats so that accuracy is maintained across platforms. English-language summaries are especially important for international discoverability and academic exchange, while Karakalpak should remain central because heritage transmission depends on the language in which cultural meanings are locally articulated.

Fourth, media should be integrated with education. UNESCO's intangible-heritage framework defines safeguarding broadly to include identification, documentation, research, preservation, promotion, and transmission, particularly through education (UNESCO, 2003). For ethnosport, school and university partnerships can convert media materials into lesson resources, student reporting projects, interviews with elders, and practical demonstrations. Youth should not be treated only as an audience; they can become documentarians, translators, athletes, and researchers.

Fifth, institutional coordination is required. The strongest comparative cases link sport authorities, cultural institutions, educational organizations, tourism structures, federations, and media. Turdimuratov (2023) similarly emphasizes ethnosport as a mechanism for developing national sports and folk games in Uzbekistan. For Karakalpakstan, a regional coordinating mechanism—whether a dedicated association, working group, or program within existing institutions—could define documentation standards, approve event calendars, facilitate expert review, and maintain a public archive. The purpose should not be bureaucratic expansion for its own sake, but continuity of responsibility.

Figure 1

Proposed Cycle for Sustainable Karakalpak Ethnosport Media Representation



Note. Author-developed conceptual model based on the comparative and digital-heritage literature synthesized in this study.

Table 2

Proposed Media Development Framework for Karakalpak Ethnosport

Current weakness	Heritage risk	Recommended action	Illustrative indicator
Episodic event coverage	No cumulative public knowledge	Create recurring ethnosport editorial series and annual coverage calendar	Number of recurring features and games covered per year
Inconsistent terminology	Poor searchability and confusion	Adopt a reviewed Karakalpak terminology/transliteration guide	Percentage of items using approved names and definitions

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Limited audiovisual documentation	Loss of embodied knowledge	Record rule demonstrations, oral histories, equipment, and local variants	Verified video records and interviews archived
Single-language publication	Low national/international discoverability	Publish Karakalpak originals with Uzbek/Russian and English summaries as appropriate	Share of core records available in multiple languages
Weak education-media linkage	Youth remain passive audiences	Use media assets in schools and student fieldwork	Schools/university courses using materials
No permanent archive/coordination	Content disperses across outlets	Assign an institution to maintain a searchable public repository	Archive completeness, stable metadata, annual updates

Note. Indicators are proposed for program monitoring; they are not empirical measurements from the present study.

Research and Policy Agenda for Karakalpak Ethnosport

A stronger media strategy should be accompanied by a research program that produces evidence about what is currently visible, what remains undocumented, and which audiences are being reached. The first step would be a baseline content analysis of Karakalpak-language newspapers, television channels, news websites, institutional pages, YouTube channels, and major social-media accounts over a defined period, such as three to five years. Each item could be coded by game name, genre, language, source type, location, presence of historical explanation, use of expert testimony, visual documentation, and attention to rules. Such a study would transform the present diagnosis of fragmented coverage into measurable evidence and would allow future comparisons after policy interventions.

A second research priority is an ethnographic inventory. Media analysis alone cannot determine whether coverage is culturally accurate. Researchers should therefore conduct field interviews with elder practitioners, teachers, athletes, craftspeople who make traditional equipment, local historians, and families that continue to play particular games. Where accounts differ, the archive should preserve variants rather than force premature uniformity. This is especially important because folk games often exist in local versions, and variation can itself be culturally meaningful. Documentation forms should record who provided information, where the practice was observed, when it was recorded, and whether the described rules represent remembered, currently practiced, or newly standardized forms.

Third, the region needs a terminology protocol. A practical glossary could include the preferred Karakalpak spelling, alternative local names, definitions, pronunciation guidance, and equivalent or approximate terms in Uzbek, Russian, and English. The purpose would not be to replace Karakalpak vocabulary with international labels, but to make translation transparent. Media outlets, schools, museums, researchers, and sports organizers could then use the same reference system. Consistent metadata would also make digital search and future academic citation much easier.

Fourth, policy evaluation should include both media and heritage outcomes. A regional program might track the number of documented games, expert-reviewed records, hours of audiovisual material, school activities, trained journalists, published translations, and community contributors. Media metrics such as reach and engagement should be interpreted alongside these indicators rather than treated as the only evidence of success. This approach is consistent with the broader heritage principle that safeguarding concerns continuity and transmission, not merely publicity (UNESCO, 2003).

Finally, ethical governance should be explicit. Community members should know how recordings will be stored and reused, and culturally sensitive material should not be commercialized or circulated without appropriate consent. Credit should be given to practitioners and knowledge holders, especially when their demonstrations or oral histories become reusable media assets. These safeguards can help ensure that institutional promotion does not detach ethnosport from the people whose knowledge sustains it. In this sense, a Karakalpak ethnosport program should treat media production as a collaborative research

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practice: journalists make heritage visible, researchers verify and contextualize it, institutions preserve access, and communities retain an active role in defining what the tradition means.

Discussion

The proposed strategy has two broader implications. First, ethnosport should be treated as living cultural heritage rather than as a fixed inventory of old games. Living traditions change: rules are negotiated, equipment changes, young participants introduce new performance styles, and media creates new audiences. Sportification is therefore not automatically harmful. As Philippe (2014) demonstrates, institutionalization can help traditional practices survive, but it also produces tensions around authenticity and standardization. The appropriate goal is transparent adaptation: media and organizers should document what is historical, what is reconstructed, and what has been standardized for modern competition.

Second, visibility must be evaluated qualitatively as well as quantitatively. A video with many views may still be weak heritage communication if it omits the Karakalpak name of the game, misidentifies its origin, or presents a staged version as unchanged tradition. Conversely, a carefully documented interview with an elder practitioner may have a smaller audience but high archival and educational value. A balanced evaluation system should therefore combine reach indicators (views, shares, attendance) with heritage indicators (number of games documented, expert-reviewed entries, oral histories recorded, multilingual resources produced, school use, and participation by local communities).

Comparative festivals also show the importance of cultural diplomacy. Large ethnosport events enable communities to present themselves through embodied practice rather than through abstract national branding alone. Yet Karakalpakstan's strongest contribution to such networks would come from specificity. International recognition is more likely when practices are well documented, named consistently, visually explained, and institutionally supported. The objective should not be to label every folk activity as a sport, but to establish a defensible corpus of Karakalpak ethnosport that scholars, journalists, educators, athletes, and international organizations can understand and reference.

Conclusion

Karakalpak traditional games possess clear potential for cultural education, community participation, regional identity, tourism, and international ethnosport exchange. The principal challenge is not a complete absence of media attention, but the absence of a continuous system that connects documentation, interpretation, publication, education, events, and institutional responsibility. Comparative experience from Uzbekistan and the World Nomad Games demonstrates that festivals can generate powerful visibility, while research on intangible cultural heritage shows that digital media can support transmission when representation remains context-sensitive.

For Karakalpakstan, five priorities emerge: a community-reviewed digital register; specialist editorial standards and recurring media formats; multilingual distribution; integration with education; and permanent coordination and archiving. Together, these measures can support a future encyclopedia, wider ethnosport participation, and sustained cultural documentation that keeps Karakalpak knowledge central while improving national and international visibility.

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DIDACTIC PRINCIPLES FOR DEVELOPING ANALYTICAL THINKING IN PRIMARY SCHOOL STUDENTS

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ABSTRACT
This article examines the didactic principles that support the development of analytical thinking in primary school students. The discussion emphasizes the need to align analytical tasks with learners' age-related and cognitive characteristics, to increase task complexity gradually, to use problem situations, and to balance teacher guidance with independent activity. Analytical thinking is treated as a system of interconnected skills, including distinguishing relevant features, comparing objects and ideas, classifying information, identifying cause-and-effect relationships, justifying judgments with evidence, generalizing, and drawing independent conclusions. The article explains how these skills can be developed progressively across Grades 1 through 4, beginning with concrete comparisons and simple grouping and advancing toward the evaluation of alternatives, identification of internal relationships, and evidence-based reasoning. Particular attention is given to managing cognitive load and avoiding tasks that overload working memory with excessive conditions or irrelevant information. Problem-based activities are presented as a mechanism for stimulating analysis when they contain incomplete information, contradictory evidence, multiple possible answers, or competing solutions. The article also argues that analytical tasks should be integrated into language, reading, mathematics, and science lessons so that analytical thinking becomes a transferable intellectual tool rather than an isolated classroom exercise for learning, autonomy, and informed decision making.

ACCEPTED

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Keywords: *analytical thinking, primary education, cognitive development, didactic principles, problem-based learning, independent learning.*

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Introduction

Modern education should not be limited to transmitting ready-made knowledge. It should also develop students' ability to analyze information independently, compare different features, distinguish essential information from secondary details, identify cause-and-effect relationships, and draw evidence-based conclusions. These tasks make the development of analytical thinking one of the priority directions of primary education. In this context, general pedagogical theory and instructional technology emphasize active, purposeful, and learner-centered cognitive activity as a basis for meaningful learning (Azizxo'jayeva, 2011; Ishmuhamedov et al., 2008; Xodjayev, 2017).

The primary school period is one of the foundational stages that shapes subsequent intellectual development. During these years, children actively acquire mental operations such as comparison, generalization, classification, analysis, and the formulation of simple conclusions. Therefore, activities designed to develop analytical thinking should not be organized randomly; they should be structured

according to clear didactic principles. Research on critical thinking and cognitive development likewise supports the gradual movement from simpler forms of reasoning toward more deliberate evaluation and justification (Kuhn, 1999).

The effectiveness of developing analytical thinking depends not only on task content but also on its correspondence to learners' age characteristics, its level of complexity, its problem-oriented nature, the amount of teacher support provided, and the opportunities available for independent work. These factors are also consistent with broader pedagogical approaches that connect instructional design, learner activity, and the purposeful organization of classroom tasks (Ro'ziyeva & Tolipov, 2019; To'xtaxodjayeva, 2010; Tolipov & Usmonboyeva, 2006). The following principles are especially important when selecting analytical tasks.

Principle of Alignment With Learners' Age and Cognitive Capabilities

Considering learners' age characteristics is a fundamental didactic requirement when selecting analytical tasks. The thinking of younger primary school students initially relies more heavily on concrete objects, images, and directly observable phenomena. For this reason, analytical tasks based on real objects, pictures, shapes, short texts, or familiar everyday situations are generally more suitable than highly abstract logical constructions. This progression is consistent with the view that learning is supported when instruction connects new reasoning processes with the learner's current level of development and provides appropriate support within that range (Vygotsky, 1978).

In Grades 1–2, analytical activity can begin with distinguishing objects by external features, identifying similarities and differences, grouping objects according to specified characteristics, and recognizing simple sequences. By Grades 3–4, students can increasingly be expected to identify comparison criteria independently, discover internal relationships among pieces of information, explain causes of events, and draw conclusions based on evidence. Such movement from basic cognitive operations to more complex analysis and evaluation is compatible with hierarchical approaches to learning objectives (Anderson & Krathwohl, 2001).

In this process, educators should consider not only the child's biological age but also prior knowledge, attention stability, working-memory capacity, language development, and previous intellectual experience. A task may be formally appropriate for a grade level yet still be too difficult or too easy for particular students if these factors are ignored.

When a task contains too many conditions, features, and supplementary details at the same time, it can impose excessive cognitive load. The student may then devote more effort to holding information in memory than to analyzing the essence of the problem. Therefore, the amount and organization of information in analytical tasks should be adjusted to learners' cognitive capabilities, particularly because working memory is limited during complex learning (Sweller et al., 2011).

Principle of Gradual Increase in Complexity

Analytical thinking is not a skill that develops instantly. It grows through a consistent transition from simple mental operations to increasingly complex intellectual activity.

The principle of gradual increase in complexity means that tasks should become more demanding not only in quantity but also in the quality of the mental operations they require. For example, a student may first identify visible differences between two objects. At the next stage, the student compares them according to a given criterion. Later, the student independently determines the criterion for comparison and explains the meaning of the identified similarities and differences. This progression reflects the instructional value of sequencing objectives from foundational processes toward analysis, evaluation, and independent judgment (Anderson & Krathwohl, 2001).

This approach allows analytical abilities to develop progressively across grade levels. In Grade 1, students learn to distinguish objects and phenomena, group them in simple ways, and identify basic sequences. In Grade 2, they begin to consider several features simultaneously, classify objects and

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phenomena into categories, and identify simple causal relationships. In Grade 3, greater attention is given to recognizing internal relationships and patterns and to explaining ideas with evidence. By Grade 4, students develop the capacity to evaluate alternatives, compare different types of information, and draw conclusions independently.

Thus, analytical thinking should be developed through a coherent didactic system in which task complexity increases systematically rather than through disconnected exercises. Studies and pedagogical discussions on independent thinking in primary education similarly emphasize the importance of structured opportunities for increasingly autonomous reasoning (Abduraxmonova & Fayzullaxo'jayeva, 2024; Beshimova et al., 2026; Gulmonova, 2026).

Principle of Problem Orientation

Analytical thinking becomes especially active when the learner encounters an intellectual difficulty, uncertainty, or contradiction. If the answer to a task is known in advance or can be obtained by applying a ready-made algorithm without analysis, the activity may provide only limited development of analytical ability.

A problem-oriented task encourages the learner to reconsider the available information, identify relationships among pieces of evidence, and find a logical basis for a solution. Problem-based learning research similarly shows that appropriately structured problems can engage learners in content learning, reasoning, and self-directed inquiry (Hmelo-Silver, 2004).

To create an appropriate level of problem orientation, a task may include the following elements:

- Missing information
- Irrelevant or excessive information
- Contradictory evidence
- Several possible answers
- A situation that requires explanation
- A choice among alternative solutions

For example, students may be given two different interpretations of an event and asked, “Which view do you consider more justified, and why?” Such a question directs attention away from simple recall and toward the analysis of evidence.

Problem situations therefore function as an effective didactic mechanism for activating analytical thought. At the same time, problem solving should not be equated with unguided discovery: evidence suggests that learners often benefit from explicit guidance and structured support while they engage in cognitively active learning (Mayer, 2004).

Balance Between Cognitive Activity and Independence

When organizing analytical activity, it is important to maintain an optimal balance between the teacher’s pedagogical support and the student’s independent work. Excessively detailed instructions can lead students merely to reproduce a ready-made thinking scheme. Conversely, insufficient guidance can make a task unnecessarily difficult and reduce productive engagement.

For this reason, the teacher can initially demonstrate selected methods of analytical activity. At the next stage, only supporting criteria or prompts are provided. Subsequently, pedagogical assistance is gradually reduced while the learner’s independence is increased. This pattern is consistent with the principle of instructional support that is gradually withdrawn as students gain competence (Vygotsky, 1978), and with evidence favoring guided rather than minimally guided discovery (Mayer, 2004).

For example, in a comparison activity, the teacher may initially determine the comparison criterion. Later, the student may choose one criterion from several options. At the final stage, the learner independently identifies the criterion and explains why it was selected.

Such methodological sequencing helps students not only complete a particular task but also learn to plan, monitor, and manage their own thinking. This transition toward self-regulation is especially

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important for developing independent and creative reasoning in primary education (Abduraxmonova & Fayzullaxo'jayeva, 2024; Gulmonova, 2026).

Integration of Analytical Tasks Into School Subjects

Analytical skills should not be restricted to separate special exercises. From a pedagogical perspective, they should be integrated naturally into the content of existing school subjects. This approach enables students to practice analytical operations repeatedly in meaningful contexts and supports the application of thinking skills across domains.

In language and reading literacy lessons, students can distinguish main ideas from secondary details, compare parts of a text, identify causes of events, and evaluate characters' actions using textual evidence.

In mathematics, analytical thinking can be developed by identifying essential and irrelevant information in a problem statement, comparing alternative solution methods, and recognizing patterns and relationships.

In science, effective analytical tasks can require students to explain cause-and-effect relationships among phenomena, compare observation results, and draw conclusions from available evidence.

As a result, analytical activity becomes not an isolated theoretical concept but a general intellectual tool that students can use across subjects. Such integration is consistent with pedagogical approaches that emphasize active methods and instructional technologies across the curriculum (Ishmuhamedov et al., 2008; Ro'ziyeva & Tolipov, 2019; Tolipov & Usmonboyeva, 2006).

Conclusion

Developing analytical thinking in primary school students requires a systematic and didactically grounded approach. The main conditions include matching analytical tasks to learners' age and cognitive capabilities, increasing complexity gradually, creating problem situations, and balancing pedagogical support with independent activity. These principles are consistent with both general pedagogical theory and contemporary perspectives on cognitive development, guided learning, and problem-based instruction (Hmelo-Silver, 2004; Sweller et al., 2011; Xodjayev, 2017).

In the development of analytical thinking, the way a student arrives at an answer is more important than merely obtaining the ready-made answer. Therefore, instruction should regularly engage children in comparing, grouping, identifying causes, selecting evidence, generalizing, and drawing independent conclusions. This orientation supports the development of reasoned judgment rather than mechanical reproduction of information (Kuhn, 1999).

When these principles are applied in an integrated manner, students can improve not only their mastery of subject content but also their capacity for independent thinking, conscious information processing, and well-founded decision making. Such outcomes are central to the broader pedagogical goal of preparing learners to use knowledge actively and responsibly in new situations (To'xtaxodjayeva, 2010).

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PEDAGOGICAL CONDITIONS FOR FORMING SKILLS TO WORK WITH ARTIFICIAL INTELLIGENCE IN FUTURE TEACHERS

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ABSTRACT
This in the article preschool education studying in the field of future in educators artificial intellect with work skills of formation pedagogical conditions illuminated. Modern digital education in the environment artificial intellect from technologies pedagogical for purposes reasonable and effective use future educators professional of preparation important structural to the part around is going on. In the article artificial of intellect preschool in education opportunities, future in educators formation necessary was main skills and to them to be placed pedagogical requirements analysis also, artificial from the intellect of use pedagogical, methodological, informational safety and academic honesty aspects attention focused on. Future educators artificial intellect literacy in development practical tasks, problematic situations, project activity and reflexive from the approach of use importance based on given.

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Keywords: *artificial intellect, future educator, preschool education, digital competence, digital literacy, pedagogy competence, artificial intellect literacy, innovation technologies, education technologies, professional preparation.*



Introduction

Today on the day digital of technologies intense development education system all in stages pedagogue to the activity wearable of requirements to the update reason Especially artificial intellect technologies wide popularity pedagogical activity planning, educational materials working exit, children individual features into account to receive, pedagogical the process analysis to do and education quality monitoring to do for new opportunities to the surface is bringing. This point in terms of modern from the educator not only traditional pedagogical knowledge and skills, but digital technologies, especially artificial intellect from the means pedagogical for purposes use to the competence has to be also demand is being done (President of the Republic of Uzbekistan, 2019).

Preschool education in the system this issue is separate importance profession Because preschool aged children with take to go education process child's young, psychological and individual features deep into account to take demand Artificial intellect tools to the educator training for didactic materials, creative tasks, games, questions and answers, fairy tales and pedagogical situations working on the way out help to give possible. However this from technologies use in the process pedagogical to the goal compatibility, child security, information reliability, personal information protection to do and pedagogical responsibility such as aspects into account to take necessary.

Uzbekistan In the Republic education system digitalization, modern information and communication from technologies use and education recipients digital competencies develop state education of the policy priority from directions one as manifestation In particular, education quality education, pedagogue personnel modern professional competencies with arm and innovative technologies education to the process current to grow according to done increasing reforms future educators digital in the environment activity to conduct preparation the issue further is updating (President of the Republic of Uzbekistan, 2020a).

Artificial from the intellect use his/ her skills only certain program or from the platform technician use ability as interpretation to do to the goal appropriate not. This skill teacher's artificial intellect opportunities understand, from him relevant pedagogical task solution in the process of use, taken information critical analysis to do, artificial intellect by created of the content accuracy and pedagogical value assessment and from it responsible use also cover takes. This because of future educators preparation in the process artificial intellect with of work technician aspects with one in order, pedagogical, methodical and moral aspects also formation important.

Future in educators artificial intellect with work skills of formation pedagogical conditions When you say, first of all, the highest education in the institution modern digital education environment create, students artificial intellect about theoretical knowledge practical activity with linking, pedagogical to situations directed from assignments use, independent and creative activity encouragement and the results evaluation clear criteria working exit understood. This in process to students artificial intellect from the means ready materials blindly acceptance to do not, maybe from them creative and critical use culture formation separately importance For example, the future educator artificial intellect using preschool aged children for didactic game working output possible. However of the game content child's to age compatibility, development opportunities, security and preschool education to the methodology compatibility in terms of pedagogue by again analysis to be done This is necessary. artificial intellect with work of the habit simple technician from literacy high level professional competence that shows.

So, the future in educators artificial intellect with work skills formation modern preschool education system digital transformation under the circumstances current scientific and pedagogical problem This is problem scientific in terms of study and effective pedagogical the conditions determination future educators professional readiness improve them modern digital education in the environment effective activity to conduct preparation opportunity gives.

Literature Analysis

Future educators digital education in the environment professional to activity preparation issue last in years pedagogy science current from directions to one is turning. Foreign in research artificial of intellect education in the process opportunities, educators digital competence develop and artificial from the intellect responsible use to the issues separately attention In particular, UNESCO in education artificial from the intellect use with related pedagogical competencies, ethics standards, data safety and human in the center approach important directions as shown.

Artificial of intellect in education opportunities learned researchers this technologies for individual learning support, educational content creation, pedagogical the process planning and education recipients activity to increase service to do possible They emphasize. With this together, artificial from the intellect use as a result wrong or unreliable information to get, academic honesty violation, personal of information protection and pedagogical decisions to technology too much outside tie such as problems to the surface arrival possibility record done.

Scientific and pedagogical education in literature digitization, educators information and communication from technologies use competence development, innovation education technologies pedagogical to the process current to grow issues wide research This research future of educators digital competence develop for practical to activity directed education, independent education and innovative

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pedagogical from technologies use importance shows. However preschool education in the direction of education taking future in educators exactly artificial intellect with work skills of formation pedagogical conditions systematic accordingly study issue enough research not yet arrived.

Literature analysis this shows that artificial intellect with work skill technician from tools use with information without limitation search, analysis to do, critical evaluation, prompts effective use, created the content pedagogical in terms of adaptation and from technology boot use also covers competencies to receive It is necessary. Therefore this in the article future educators artificial intellect with to work preparation pedagogical conditions to determine separately attention is focused.

Research Methodology

In the study future in educators artificial intellect with work skills of formation theoretical and practical aspects determination for the purpose pedagogical, psychological and scientific and methodological literature analysis to do from the method used. Research in the process artificial intelligence, digital competence and future of educators professional to prepare related scientific views comparative-analytical basically studied. Also, the future educators artificial from the intellect use activity in evaluation observation and conversation from methods use opportunities seeing was released. In the study systematization, generalization and pedagogical modeling methods through artificial intellect with work skills structural components marked. Obtained theoretical conclusions based on future in educators this skills of formation effective pedagogical conditions was determined.

Analysis and Results

Artificial intellect technologies education to the process enter arrival teacher's professional activity content and to her wearable competency-based requirements fundamentally is changing. This in process future educators artificial intellect tools with to work preparation issue not only technological, maybe pedagogical and methodological and moral problem also manifested as UNESCO 's announcement in 2024 In the document “AI Competency Framework for Teachers” artificial intellect in education replacing the traditional “ teacher - student ” relationship with a “ teacher - artificial "intellect - student " relationship take coming record (UNESCO, 2024). This situation future educators artificial from the intellect of use technician sides only with not, maybe from it pedagogical in terms of targeted and responsible use to arm with the necessity shows.

Future in educators artificial intellect with work skills to form one how many mutual related components based on organization to grow to the goal according to. Research the results generalization based on this your habit motivational-value, cognitive, practical-operational, creative and reflexive-ethical from components consists of structure offer to grow possible.

Motivational-Value Component

This component future educator artificial intellect from technologies to use was interest, his pedagogical opportunities understanding and new technologies own professional to the activity integration to do readiness The student has an “ artificial intellect educator instead "occupies" look not, but "artificial" intellect educator pedagogical activity supportive "tool" approach formation UNESCO is also an artificial from the intellect in use human in the center approach main from principles one as defines (UNESCO, 2023).

Cognitive Component

This is the future educator artificial of intellect essence, main capabilities, performance principles, generative AI tools, data and algorithms about elementary knowledge own inside UNESCO students for competence within the framework of “AI foundations and applications” direction as determined and from educators artificial of intellect main concepts knowledge, education for suitable AI tools choice and them practical try required to see (UNESCO, 2021). At this point from the perspective of, before school education direction to their students artificial of intellect complicated technician mechanisms deep from

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teaching according to him pedagogical opportunities to understand directed practical knowledge to give more efficient is considered.

Practical-Operational Component

This component artificial intellect from the means directly use skills In particular, the correct prompt formulation, pedagogical to the task suitable AI tool selection, training development, didactic game, task, question and answer, fairy tale, picture description or educational situation create and taken the result pedagogical in terms of again work this component to the composition UNESCO students competence within artificial from the intellect use according to Competencies are developed through the “Acquire – Deepen – Create” stages. based on development This approach is shown in future educators preparation use in the process (UNESCO, 2023). For example, a student may be asked to “5–6 years old in children the colors distinction her skills developer didactic game working "exit" task is given. Student initially artificial intellect to the tool pedagogical task clear gives a prompt that represents, then taken the result preschool aged children's psychological features, educational goal and methodical requirements based on analysis does.

Necessary cases created by AI the material changes, simplifies or again working The result is student artificial from the intellect ready answer to take tool as not, maybe pedagogical product in creation help giver tool as use learns.

Creative Component

Artificial from the intellect effective use future educator creative opportunities expansion possible. With the help of AI different pedagogical situations, didactic games, creative exercises, fairy tales plots, roles games and visual materials for ideas working exit possible. However this in process ready the content straight away application not, maybe her teacher's creative again performance UNESCO also defines students' AI competencies as "Understand – Apply – Create" levels. through describes (UNESCO, 2024). This three step by step approach future educators artificial intellect with work skills methodological in development basis become service to do possible.

Reflexive-Ethical Component

Research point from the point of view the most important from aspects one by AI created information critical assessment and from it responsible use is a habit. Artificial intellect created every how information absolute truth as acceptance to do pedagogue for dangerous to be possible. Therefore for future The tutor's AI response substantive accuracy, age to the characteristics compatibility, pedagogical to the goal compatibility and moral in terms of acceptability check UNESCO 's 2023 Generative AI in the manual human central, safe, fair and meaningful use necessity emphasized.

Preschool in education this demand is further is important. Because using tutor AI children when creating material for child's personal information, photos or other identification doer information to open AI platforms from placement caution to be UNESCO also works with generative AI related in matters information confidentiality protection to do important from directions one as shows.

Research the results generalization based on future in educators artificial intellect with work skills formation for following pedagogical the conditions can be separated:

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Table 1

Pedagogical Conditions for Forming Artificial Intelligence Work Skills

Pedagogical condition	Description
Digital-educational the environment create	High education in the institution students artificial intellect tools try vision and pedagogical tasks in execution from them use for practical opportunity creation necessary.
Education content with AI enrichment	Preschool education methodology, pedagogy, psychology and other specialty sciences within artificial from the intellect to use related practical assignments current to grow necessary.
Practical activities directed approach	Students about AI only theoretical information without taking, real pedagogical situations based on from it use studies need.
Prompt Engineering elements to teach	With AI for the student communication in doing task clear, consistent and pedagogical to the goal appropriate expression his/ her skills formation necessary.
Critical evaluation develop	Student created AI the answer check, errors determination, reliable sources with compare and pedagogical in terms of again to work teaching necessary.
Ethics and safe use culture formation	Academic honesty, authorship right, personal information protection to do and AI capabilities responsible use principles practical training through absorption need.
Creative projects organization to grow	Helping students with AI preschool education for didactic game, exercise development, educational situation, fairy tale or multimedia material create according to project assignments to give effective result gives.

UNESCO Teachers of the Year 2024 AI competency for circle such as "human- centered mindset", "ethics of AI", "AI foundations and applications", "AI pedagogy" and "AI for professional learning" five direction defines.

This directions preschool to education adaptation as a result future educators artificial intellect with work competence of formation whole model to the surface comes. Analysis as a result future with the tutor's AI work competence " know - apply - analyze" to do – to create – to be responsible use " sequence based on develop to the goal appropriate that was determined. In this initially student artificial of intellect opportunities knows, later from it simple pedagogical tasks in execution uses, next by AI in stages created the results analysis does and improves, high in stages and independent pedagogical product creates. This of the process final result as student's artificial from the intellect safe, ethical, critical and creative use competence is formed.

So doing research results artificial intellect with work skills to form future educators professional preparation additional direction not, maybe modern digital pedagogical competence structural part as look the necessity shows. Especially before school AI tools in education use child's interests, age and psychological characteristics, pedagogical goal and security requirements submission On this basis organization done education process future educators digital literacy increase with one in a row, their critical thinking, creativity, pedagogy decision acceptance to do and professional to develop independence opportunity gives.

Conclusion

Take visited theoretical analysis results this shows that artificial intellect technologies education to the process intense enter arrival future educators professional preparation content modern requirements based on improvement requirement is doing. Before school education in the system artificial from the intellect use educator instead pressing not, maybe her pedagogical activity support, creative and methodical opportunities to expand service doer tool as consideration necessary.

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Research during future in educators artificial intellect with work skills formation motivational-value, cognitive, practical-operational, creative and reflexive-ethical components mutual harmony based on organization to be to the goal compatibility was determined. This components formation students artificial intellect opportunities understand, from it pedagogical tasks in execution use, created the results critical analysis to do, creative products create and from technology responsible use competence develops. Future educators artificial intellect with to work in preparation education process practical to activity redirect separately importance has. To students artificial intellect using preschool aged children for didactic games, creative assignments, training developments, fairy tales and pedagogical situations create of tasks to be given in them theoretical knowledge practical activity with tie opportunity gives.

Also, from AI tools use in the process of information reliability examination, academic honesty, authorship right, personal information protection to do and child's safety provision to the issues separately attention focus necessary. Therefore future educator artificial intellect competence only technician skills sum not, maybe pedagogical, digital, critical, creative and moral competencies integrated shape as consideration necessary.

In general, the future in educators artificial intellect with work skills formation "Know - Apply - Analyze" process to do – to create – to be responsible use "sequence based on organization to grow effective pedagogical approach as manifestation will be. Such approach future educators modern digital education to the environment adaptation, professional independence, creativity and pedagogical activity efficiency to increase service does. From the above come out below recommendations working output :

1. Preschool education direction training to the process artificial intellect with to work related practical training integration to do and students using AI didactic games, training developments, creative assignments and other pedagogical materials create according to assignments system working exit recommended.
2. The baby in educators artificial from the intellect responsible and critical use competence formation Create a prompt for, AI created of information reliability examination, academic honesty, authorship right and personal information protection to do related special methodical training organization to grow appropriate.
3. The baby educators artificial intellect with work competence evaluation criterion and indicators working exit and them experiment in the process application recommendation is being done. In this about the student's AI knowledge, practical use skill, creativity approach, critical thinking and boot responsibility main assessment criteria as to be determined possible.

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THE CONTRIBUTION OF ICHERISHEHER TO THE FORMATION OF THE NATIONAL AND CULTURAL IDENTITY OF YOUTH

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ABSTRACT
The article examines the role of the Icherisheher State Historical and Architectural Reserve in the development of the national-cultural identity of young people and the importance of cultural and educational projects implemented here. In addition to the protection of cultural heritage, the study analyzes its role in the development of the historical memory, commitment to national values, and cultural awareness of the younger generation. The main purpose of the study is to determine the impact of excursions, exhibitions, master classes, creative projects, and other educational events organized in Icherisheher on the national-cultural identity of young people. Document analysis, description, and content analysis were used during the study. The results show that Icherisheher is not only a place where historical and architectural monuments are preserved, but also acts as an informal educational environment. Expanding cooperation between museums and educational institutions and organizing interactive projects have a significant impact on increasing young people's knowledge about cultural heritage and strengthening their attitude to national values.

ACCEPTED

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Keywords: *Azerbaijan, Icherisheher, Cultural heritage, Youth, national-cultural identity.*

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Introduction

Icherisheher is one of the oldest cultural heritage sites in Azerbaijan and serves as one of the country's most important centres for learning about its history and cultural heritage, while also contributing to the development of the tourism sector. At this point in time, one of the cultural policy priorities of the Republic of Azerbaijan promotes our heritage, educating young people about this heritage, and strengthening our national identity among the youth. It should be emphasized that museums and heritage places are not only historical and cultural symbols, but they are also our historical memory and national values. Icherisheher has several historical and architectural monuments, such as mosques, baths, tombs, carvanserais and palaces. Youth generations should study ancient places because of that if they learn about these places, they will also understand our history and culture deeply. Due to the fact that Icherisheher organizes numerous events, such as excursions, exhibitions, master classes and similar programs.

In that case, the research paper is significant for studying the cultural knowledge of the younger generation. The object of the research is the cultural activities of Icherisheher, while the subject is these educational programs affect the development of the national-cultural identity of the younger generation.

The aim of the study is to determine the role that cultural and educational projects carried out in Icherisheher play in the cultivation of young people's national and cultural identity. To achieve this purpose, the following tasks are carried out:

- to analyze the role of cultural heritage in the formation of national-cultural identity;
- to examine the educational opportunities provided by museums and historical monuments;
- to determine the main features of the heritage-based initiatives in Icherisheher;
- to identify the role of activities such as exhibitions, master classes in the shaping of the national values of young people.

Method

The methodology of research is based on explaining the cultural initiatives of Icherisheher contribute to the development of the younger generation's cultural and historical awareness. Therefore, a qualitative approach is adopted in this study. The research methods include document analysis, descriptive analysis, content analysis.

- Document analysis is used to examine scientific literature, and the official website and social media platform of the Icherisheher State Historical and Architectural Reserve. The main works of the study consist of S.Əmirxanov's "Azərbaycanda muzeyşünaslığın aktual problemləri", "Məktəblilərin muzey və muzey tipli müəssisələrə cəlb olunması, muzeylərin təbliği işinin əsasları: Metodiki tövsiyə", M.Məmmədzadə's "Muzeylərin ali məktəb müəssisələri ilə qarşılıqlı əlaqəsi" among sources. These sources helped to study the role of museums in developing young people's cultural knowledge of national values. One of the primarily source base is the official website and instagram of the Icherisheher State Historical and Architectural Reserve, which the cultural events by Icherisheher are systematically investigated;
- Descriptive analysis is used to describe the cultural programs carried out in Icherisheher;
- Content analysis is applied to examine the information presented in cultural events, exhibitions, and educational activities organized in Icherisheher.

Figure 1

The Festival of "Nağıllar Aləmi İçərişəhər"



Note. Source: İçərişəhər Dövlət Tarix-Memarlıq Qoruğu İdarəsi (2026e).

Results or Findings

Collaboration Between Museums and Educational Institutions

Museums are not only places where historical and cultural examples are preserved, but also important social institutions that affect the enlightenment of society, the spiritual, intellectual and aesthetic development of people. They play a significant role in preserving the historical memory of the people, national customs and traditions and spiritual wealth and passing them on to future generations. Through the scientific research, exposition, exhibition, propaganda and educational activities of museums, interest in historical events, respect for cultural heritage and commitment to national values are formed in visitors. The use of exhibits, exhibitions, archival materials, digital presentations and other modern tools in museum activities creates conditions for people to assimilate information more fully and visually. In this process,

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the professionalism of museum employees, the correct presentation of exhibits and effective communication with visitors are of particular importance. In particular, cooperation between museums and schools has a significant impact on the expansion of the worldview of the younger generation, the formation of their national and cultural identity and the enhancement of their spiritual values. Thus, museums are not only institutions where material heritage is preserved, but also act as significant educational and nurturing centers that serve to form knowledge, cultural thinking, and spiritual qualities in people (Əmirxanov, 2011, pp. 386–390, 395–400).

Museums are considered one of the crucial educational and upbringing centers serving the enlightenment of society, the spiritual, intellectual and aesthetic development of man. The directions of research, protection, restoration, demonstration and propaganda of museum initiatives create conditions for the strengthening of the worldview of visitors, the enhancement of a sense of respect for national and cultural values and the preservation of historical memory.

Cooperation with schools and other educational institutions is of particular importance in the realization of the educational opportunities of museums. The correct establishment of museum-school relations, the organization of activities appropriate to age characteristics and the use of interactive methods increase the interest of schoolchildren in museum activities. The museum environment allows the development of observation, research, independent thinking and creative approach skills in children. At the same time, patriotism, national identity, social responsibility and moral values are formed in young people through exhibits, exhibitions and educational events.

The educational function of museums is carried out on the basis of the interaction of various means. Expositions, exhibits, museum lessons, excursions, associations, clubs, lectures, meetings and thematic events serve to expand the knowledge of visitors. In particular, exhibits, as living examples of historical events and cultural processes, contribute to a deeper assimilation of theoretical information. The correct organization of exhibitions and the selection of presentation methods allow for the creation of an educational environment that is appropriate for the interests and perceptions of different age groups.

Club and association initiatives organized in museums, as well as various projects, create conditions for the development of research and creative skills of participants. School museums also strengthen the knowledge of students through practical observation, making the educational process more interesting and effective. In addition, the professionalism of museum employees, the use of modern technologies and the implementation of various educational programs further increase the educational potential of museums.

Thus, more effective results are achieved when the educational and educational opportunities of museums are implemented in close connection with each other. Museums act as crucial socio-educational institutions that serve to increase people's knowledge level, form aesthetic taste, develop moral values, and strengthen their attachment to cultural heritage.

In modern times, in order to increase the role of museums in the educational and upbringing process, the application of interactive and practical forms of activity, along with traditional excursion methods, is of great importance. Establishing cooperation between museums and educational institutions allows schoolchildren and students to connect their theoretical knowledge with practical activities and to more deeply assimilate museum materials. In particular, the internship of students studying in museums, participation in various exhibitions, thematic excursions, open lessons, seminars and other events significantly contributes to the development of their professional training (Əmirxanov, 2011, pp. 337–342, 342–350).

Lessons held in a museum environment, the use of exhibits, archival documents and other material sources create conditions for students to understand historical events more clearly and form research skills. At the same time, associations, creative groups and educational programs organized in museums increase the interest of young people in cultural heritage, affect the development of their national-cultural identity and civic position.

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In order to increase the efficiency of museum projects, it is significant for teachers and educational institutions to use museum resources purposefully, organize events in accordance with age characteristics and educational programs. In addition, exhibitions, publications, digital platforms, virtual presentations and other promotional tools allow museums to reach a wider audience.

Thus, the establishment of continuous cooperation between museums and educational institutions serves not only to strengthen knowledge, but also to form the historical memory, moral values and attachment to cultural heritage of the younger generation. From this perspective, museums are not just protective institutions, but also important educational centers that teach, encourage research, and creativity (Məktəblilərin muzey və muzey tipli müəssisələrə cəlb olunması, muzeylərin təbliği işinin əsasları, 2015; Məmmədzadə, 2013, pp. 191–192).

The Educational and Cultural Functions of Museums Through the Example of Icherisheher State Historical-Architectural Reserve Projects

In modern times, the areas of activity of museums have expanded significantly. Previously characterized mainly by the preservation of exhibits and their presentation to visitors, museum projects are today enriched with more educational, social and educational projects. Museums are no longer just a place where historical examples are displayed, but also act as an informal educational environment where different age groups acquire knowledge, develop creative skills and assimilate cultural values. In this regard, the projects implemented by the Icherisheher State Historical and Architectural Reserve Department are examples of the breadth of interaction between museums and society and educational opportunities.

Projects implemented to develop children's creative abilities reveal the educational and aesthetic importance of museums. The exhibitions "İçərişəhərin balaca rəssamları" and "Qışın rəngləri" organized at the Baku House of Photography are noteworthy in terms of increasing children's interest in art. Through these projects, children not only developed their drawing skills, but also gained the opportunity to express their thoughts and feelings in an artistic form, influenced by the historical and cultural environment. Drawing classes, master classes and exhibition activities had a positive impact on revealing the creative potential of children and forming their aesthetic worldview.

Socially oriented projects also occupy an important place in the projects of museums. Excursions organized in Icherisheher for children involved in various social programs allowed them to get acquainted with historical sites and expand their initial ideas about cultural heritage. Such events create conditions for both children to spend their free time effectively and for them to participate in the cultural life of society. At the same time, creative events held within the framework of the Nağıllar Aləmi İçərişəhər festivalı helped to develop the imagination of schoolchildren, increase their interest in the ancient urban environment and form a different view of historical sites.

The cooperation of museums with higher education institutions is one of the significant indicators of their scientific and educational function. Excursions on the topic of restoration and conservation organized for students studying architecture at ADA University gave students the opportunity to observe the process of preserving historical monuments in a practical way. Such initiatives are of particular importance in terms of consolidating theoretical knowledge on real examples. In addition, meetings with the participation of students of Baku Slavic University within the framework of the “İzimizi itirməyək” project served to increase the interest of young people in archaeological heritage, local history and scientific research.

The “Heritage Walk in Icherisheher” educational tour organized in Icherisheher is also one of the examples reflecting the educational function of museums. Through this event, which was attended by representatives of various fields, including architects, teachers and students, practical information was obtained about the architectural features of Icherisheher, stages of historical development and issues of

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cultural heritage protection. Such projects create conditions for the perception of the historical environment not only as an object to be protected, but also as a living cultural space that is essential to study and research.

Thus, the educational projects implemented in Icherisheher show that modern museums, in addition to being a source of knowledge and experience for different segments of society, are also significant cultural institutions that perform educational and social functions. The enhancement of museum-school and museum-university cooperation has a significant impact on the shaping of the historical memory of the younger generation, strengthening their attitude towards cultural heritage, and increasing society's awareness of national and cultural values (İçərişəhər Dövlət Tarix-Memarlıq Qoruğu İdarəsi, 2025a, 2025b, 2026a–2026f).

Discussion

The conducted analyses show that Icherisheher is a significant cultural and educational environment that influences the cultivation of the national and cultural identity of young people. Excursions, exhibitions, master classes and other educational projects carried out here not only increase the participants' knowledge about the historical heritage, but also have a positive impact on the development of such qualities as respect for national values, a sense of patriotism and responsibility for the protection of cultural heritage.

The analyzed materials show that the events held in Icherisheher cover different age groups and are organized in accordance with their interests. Art circles, exhibitions and festival programs for schoolchildren create conditions for the development of creative abilities, while excursions on the topic of restoration and conservation organized for students provide practical application of professional knowledge. Excursions for children involved in the social rehabilitation program demonstrate that cultural heritage can be used as a means of inclusive education and social integration.

The research results also show that the integration of cultural heritage objects into the educational process is a crucial tool that complements formal education. Direct observation of historical monuments, communication with experts, and interactive activities allow theoretical knowledge to be reinforced with practical experience. This in turn forms a more lasting interest in historical heritage in young people and serves to strengthen national and cultural identity.

Conclusion and Implications

As a result of the research, it was determined that Icherisheher is not only an area where the historical and cultural heritage of Azerbaijan is preserved, but also an essential educational and enlightenment center serving to form the national and cultural identity of young people. Excursions, exhibitions, master classes, creative projects and other cultural programs held here make a significant contribution to enriching the knowledge of young people about historical heritage, strengthening their commitment to national values and developing civic consciousness.

The research shows that the systematic integration of cultural heritage objects into the educational and upbringing process is an effective approach in terms of protecting the national and cultural identity of young people. In this regard, it can be considered advisable to further expand the educational projects implemented in Icherisheher, strengthen cooperation with higher and secondary educational institutions, and increase the use of digital and interactive educational technologies. Steps taken in this direction will make a significant contribution to the transfer of cultural heritage to future generations and the sustainable development of national identity values.

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