Iranian Journal of Educational Sociology

Journal Website

Article history:
Received 02 April 2026
Revised 15 August 2026
Accepted 22 August 2026
Initial Publication 25 August 2026
Final Publication 01 January 2027

Iranian Journal of Educational Sociology

Volume 10, Issue 1, pp 1-13

Quarterly
Iranian Journal of Educational Sociology

E-ISSN: 2645-3460

An Examination of the Status of Project-Based Curriculum Elements in the Blended Education System at the Upper Elementary Level

Mojtaba. Soltani[1], Amirhosein. Mehdizadeh[2*], Alireza. Araghieh[2], Nahid. Shafiee[2], Batoul. Faghih Aram[2]

[1] PhD Student, Department of Educational Sciences, Isl.C., Islamic Azad University, Islamshahr, Iran
[2] Department of Educational Sciences, Isl.C., Islamic Azad University, Islamshahr, Iran

*** Corresponding author email address**: Amirhoseinmehdizadeh@iau.ac.ir

A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Soltani, M., Mehdizadeh, A., Araghieh, A., Shafiee, N., & Faghih Aram, B. (2027). An Examination of the Status of Project-Based Curriculum Elements in the Blended Education System at the Upper Elementary Level. *Iranian Journal of Educational Sociology*, *10*(1), 1-13.
https://doi.org/10.61838/kman.ijes.1548

A B S T R A C T

Purpose: Given the importance of examining project-based curriculum elements, the present study aimed to investigate the status of project-based curriculum elements in the blended education system at the upper elementary level.

Methods and Materials: This study was applied in terms of purpose and descriptive-survey in terms of its method of implementation. The study population consisted of educational experts, school principals, and teachers in elementary schools in Tehran, of whom 397 were selected as the sample using cluster random sampling. The research instrument was a researcher-developed questionnaire whose validity was confirmed by experts and whose reliability was calculated as 0.95 using Cronbach's alpha. The data were analyzed using a one-sample t test in SPSS at a significance level of 0.05.

Findings: The findings showed that all elements of the project-based curriculum in the blended education system at the upper elementary level, including goals and philosophy, content, teaching methods, assessment, technology, educational environment, learning activities, existing challenges and shortcomings, and outcomes, were at a desirable level ($p < .001$).

Conclusion: The findings of this study have practical implications for specialists and planners in blended education systems. Based on these findings, they can take effective steps toward improving the status of project-based curriculum elements.

Keywords: *curriculum elements, project-based curriculum, blended education system, upper elementary level.*

1. Introduction

Contemporary educational systems are increasingly expected to prepare learners for environments characterized by rapid technological development, complex problem situations, interdisciplinary knowledge, and changing social and occupational demands. Consequently, traditional approaches centered primarily on content transmission, memorization, and teacher-directed instruction are progressively being supplemented or replaced by learning models that emphasize active participation, inquiry, problem solving, collaboration, creativity, and the application of knowledge in authentic contexts. This transformation has substantial implications for curriculum planning because the effectiveness of educational innovation depends not merely on adopting new technologies or instructional techniques but on achieving coherence among curriculum goals, content, teaching strategies, learning activities, assessment procedures, educational environments, and expected outcomes. At the elementary level, these considerations are particularly important because foundational cognitive, social, communicative, and self-regulatory competencies are formed during these years and may influence students' subsequent educational trajectories. Curriculum design at this level therefore needs to provide structured opportunities for meaningful learning while remaining responsive to students' developmental characteristics and the broader social purposes of schooling (Sehgal & Forgey, 2025; Tamjidtash & Mojalal Chobgalo, 2014).

The quality and relevance of curriculum are also central to broader concerns regarding educational development and sustainability. International perspectives increasingly conceptualize education not only as the transmission of disciplinary knowledge but also as a critical mechanism for developing human capital, reducing inequalities, increasing participation, and supporting sustainable social development. Comparative analyses of educational systems based on indicators associated with Sustainable Development Goal 4 illustrate that educational quality, access, participation, and institutional capacity remain interconnected dimensions of national educational performance (Oliveira-Melo et al., 2025). Within this context, curriculum innovation becomes an important management and policy instrument through which educational systems can improve learning opportunities, promote competency development, and respond to emerging technological and social conditions. For school systems, this requires curriculum planners and educational managers to move beyond isolated reforms and instead construct integrated learning environments in which instructional objectives, learning resources, technologies, teaching practices, and evaluation systems mutually reinforce one another.

One of the instructional approaches that has received increasing attention in this regard is project-based learning and, more specifically, project-based curriculum design. Project-based learning organizes the educational process around meaningful projects, authentic questions, or complex tasks that require students to explore information, apply knowledge, collaborate with others, produce tangible outcomes, and reflect on their learning. Unlike conventional instruction in which activities may function primarily as supplementary exercises following teacher explanation, project-based curricula position learner activity and purposeful inquiry at the center of the instructional process. Accordingly, projects are not peripheral additions to the curriculum but serve as organizing structures for integrating objectives, content, learning experiences, and assessment. A qualitative examination of the major elements of project-based curricula has emphasized the importance of clearly specifying curriculum components and ensuring alignment among them in order to create coherent, learner-centered educational experiences (Saeednia et al., 2024). Such alignment is especially significant when project-based learning is implemented across different instructional environments rather than within a single conventional classroom setting.

Project-based curricula can contribute to the development of competencies that are difficult to cultivate through passive instructional models. When learners work on purposeful and contextually meaningful projects, they are required to identify problems, generate possible solutions, collect and analyze information, make decisions, communicate ideas, manage tasks, and evaluate outcomes. These processes can support higher-order thinking and promote a stronger connection between conceptual knowledge and practical application. Evidence from elementary education demonstrates the potential educational value of this approach. For example, the design and evaluation of a STEM project-based curriculum for elementary students has indicated that project-oriented curriculum experiences can contribute to students' perceptions of problem-solving competence and academic achievement (Aslani et al., 2026). Such findings are important because they suggest that project-based curriculum design may simultaneously

Iranian Journal of Educational Sociology
E-ISSN: 2645-3460

address academic objectives and broader competency development rather than treating these domains as separate educational priorities.

The increasing significance of computational thinking further demonstrates the need for learning environments that extend beyond conventional content delivery. In upper elementary education, computational thinking interventions increasingly emphasize decomposition, pattern recognition, abstraction, algorithmic reasoning, problem solving, and the systematic development of solutions. A review of computational thinking interventions at the upper elementary level has highlighted the growing importance of instructional approaches that provide students with active, structured, and developmentally appropriate experiences for cultivating such competencies (Curi et al., 2025). Similarly, educational frameworks integrating unplugged computational thinking activities into elementary social studies indicate that complex thinking skills can be embedded within disciplinary curricula rather than being restricted to computer science courses (Ozcan & Haslaman, 2026). These developments reinforce the relevance of project-based curricula because projects can provide an interdisciplinary context through which learners combine disciplinary knowledge, technological understanding, collaborative work, and problem-solving processes.

At the same time, technological changes in education have accelerated the development of blended learning. Blended learning generally refers to the purposeful integration of face-to-face instruction with online, digital, or technology-mediated learning experiences. Its significance lies not merely in combining two delivery modes but in reorganizing instructional processes so that the advantages of physical and digital environments can be used complementarily. Well-designed blended learning can provide greater flexibility in access to resources, diversify forms of interaction, support differentiated learning pathways, facilitate continuous communication, and extend learning beyond the temporal and spatial boundaries of the classroom. Research on blended learning has demonstrated its potential effectiveness in diverse educational settings. For example, quasi-experimental evidence has shown that blended learning can produce favorable educational outcomes when instructional activities are systematically organized across learning environments (Ma & Zhou, 2024). More recent technology-oriented developments, including mobile-first approaches, further demonstrate how blended learning models continue to evolve in response to changing patterns of technology access and learner interaction (Wang et al., 2026).

Nevertheless, blended learning should not be equated with the simple addition of online materials to conventional teaching. Its educational effectiveness depends on the quality of instructional design and the extent to which learners are meaningfully engaged in both face-to-face and online components. A systematic review focusing on effective student engagement in blended learning has emphasized the importance of designing learning environments that actively support behavioral, cognitive, and affective engagement rather than assuming that technological access automatically leads to meaningful participation (De Bruijn-Smolders & Prinsen, 2024). Similarly, a systematic review of students' acceptance and satisfaction with blended learning indicates that learner perceptions, technological usability, interaction, instructional support, and the organization of learning activities are critical dimensions of successful blended education (Cao et al., 2025). Therefore, the effectiveness of blended learning is substantially influenced by the coherence of its curriculum elements, including objectives, content, pedagogical methods, technologies, learning activities, assessment, and environmental arrangements.

The social dimension of blended learning also requires careful attention. Learning occurs through interactions among students, teachers, resources, and educational environments, and these interactions may take different forms in online and face-to-face contexts. Research on blended learning in teacher learning groups has demonstrated that participants may experience distinct social configurations during face-to-face and online meetings, highlighting the importance of intentionally designing opportunities for interaction, participation, and collaboration across modalities (Henderikx & Vrieling-Teunter, 2025). This observation has direct relevance to elementary education, where learners often require more structured support for collaboration, communication, task management, and sustained engagement. Thus, the integration of project-based curriculum with blended education requires more than providing digital platforms; it requires a deliberate pedagogical architecture through which collaborative projects, teacher guidance, peer interaction, digital resources, and classroom experiences form an integrated educational process.

In the context of elementary education, the curriculum elements required for blended learning must also be adapted to the cognitive, emotional, social, and developmental

Iranian Journal of Educational Sociology
E-ISSN: 2645-3460

characteristics of children. Research specifically aimed at identifying curriculum elements based on blended learning in elementary schools has underscored the need to define the structural and pedagogical components necessary for implementing blended education in this setting (Saburi et al., 2025). Such work indicates that the elementary blended curriculum should be understood as a multidimensional system rather than primarily as a technological intervention. Curriculum objectives must be developmentally appropriate; content should be organized in meaningful and accessible forms; teaching methods should support active participation; technology should facilitate rather than dominate learning; educational environments should allow interaction and flexibility; and assessment should capture both learning processes and outcomes. This systemic perspective is particularly relevant when blended learning is combined with project-based curriculum, because projects demand coordination among multiple curriculum components over extended periods.

Assessment constitutes another essential component of this coordination. Traditional assessment practices that primarily emphasize final scores or factual recall may not adequately capture the multidimensional learning occurring within project-based and blended environments. Project work can involve conceptual understanding, planning, participation, collaboration, problem solving, creativity, communication, digital competence, and the quality of a final product. Consequently, assessment needs to be sufficiently comprehensive to represent both processes and outcomes. Research focused on designing and validating academic achievement evaluation models in elementary multigrade classes has emphasized the importance of systematic and context-sensitive approaches to evaluating elementary students' learning (Vafaeifar et al., 2022). Within project-based blended curricula, assessment must likewise be aligned with curricular goals and learning activities, incorporate appropriate formative and summative procedures, and generate information that can guide both students and teachers throughout the learning process.

The role of teachers is equally central because successful curriculum implementation depends substantially on their capacity to translate curriculum principles into classroom practice. In blended and project-based settings, teachers increasingly function as designers of learning experiences, facilitators of inquiry, organizers of collaborative activities, providers of feedback, and mediators between digital and face-to-face learning environments. These responsibilities require pedagogical, technological, organizational, and communication competencies. Research comparing e-learning and blended learning approaches in in-service problem-solving training has demonstrated the relevance of structured professional learning for developing creativity and problem-solving capacities among educational managers (Masoomifard et al., 2025). Although such findings concern educational personnel rather than elementary students directly, they underline a broader organizational principle: educational innovation requires the continuous development of the individuals responsible for its implementation. Without adequate professional competencies, even carefully designed curricular models may not be implemented consistently or effectively.

School management and communication processes further influence the implementation of educational innovations. Principals and educational administrators play a critical role in establishing institutional priorities, facilitating teacher collaboration, allocating resources, supporting technological infrastructure, coordinating instructional activities, and communicating expectations to different stakeholders. Research concerning communication skills among elementary school principals in Tehran has highlighted the importance of communication as an essential managerial competency within elementary educational organizations (Moradi et al., 2025). In the context of blended and project-based education, effective communication becomes particularly significant because implementation involves coordination among teachers, students, school administrators, families, and sometimes external learning resources. Accordingly, examining curriculum elements without considering the organizational and managerial environment in which they are implemented may provide an incomplete understanding of their actual status.

Previous curriculum research in Iran also demonstrates a continuing interest in developing models suited to blended learning environments. The design and development of curricula based on a blended learning approach have shown that blended education requires the systematic reconsideration of conventional curriculum components rather than a superficial combination of classroom and electronic instruction (Sharafi et al., 2021). Such curriculum development efforts reflect the broader movement toward flexible and technology-supported learning systems while simultaneously drawing attention to the need for contextual adaptation. Educational systems differ in infrastructure, teacher preparation, institutional culture, learner characteristics, curriculum regulations, and access to technology. Therefore, curriculum models cannot simply be

Iranian Journal of Educational Sociology
E-ISSN: 2645-3460

transferred from one context to another without examining whether their constituent elements are appropriately developed and implemented in the target educational environment.

A particularly important issue is the relationship between curriculum content and contemporary technological and ethical competencies. Project-based curricula can provide appropriate contexts for introducing learners to emerging concepts through practical inquiry rather than abstract instruction alone. For instance, project-based curricula designed to teach artificial intelligence and ethics to middle school learners have demonstrated how project activities can be used to engage young students with technically and ethically complex subjects while generating important lessons for curriculum design and implementation (Williams et al., 2023). Although middle school differs developmentally from upper elementary education, such evidence illustrates the adaptability of project-based structures to new domains of learning and their capacity to integrate knowledge, ethical reflection, technology, and active participation. This flexibility strengthens the rationale for examining how project-based curriculum elements function within blended learning systems in earlier educational stages.

Furthermore, the expansion of blended and project-based approaches must be considered in relation to educational equity and learner diversity. Not all students engage with technology, independent inquiry, collaborative projects, or digitally mediated tasks in the same manner. Differences in access to resources, prior knowledge, self-regulation, social experiences, developmental needs, and family support can influence participation and achievement. Broader research concerning students' development within educational systems has emphasized the importance of recognizing diverse developmental trajectories and the ways in which school environments can contribute to students' psychosocial outcomes (Sehgal & Forgey, 2025). Consequently, curriculum planners must ensure that project-based blended learning environments are inclusive, sufficiently scaffolded, and responsive to differences among students rather than assuming uniform readiness for self-directed or technology-mediated learning.

The implementation of project-based curricula in blended education therefore presents both opportunities and challenges. Potential advantages include greater student engagement, increased flexibility, stronger connections between school knowledge and authentic problems, enhanced use of digital resources, improved opportunities for collaboration, and the development of problem-solving and higher-order thinking skills. At the same time, implementation may be hindered by inadequate infrastructure, insufficient teacher preparation, inappropriate technology selection, weak alignment between online and face-to-face activities, limited time, unsuitable assessment practices, inequitable access, or unclear curricular expectations. Research on blended learning consistently indicates that effective outcomes depend on instructional organization rather than technology alone (Cao et al., 2025; De Bruijn-Smolders & Prinsen, 2024). Similarly, research on project-based curriculum underscores that the quality of curriculum elements and their interrelationships is fundamental to the success of project-centered education (Saeednia et al., 2024). These observations make it necessary to assess the status of individual curriculum elements in real educational settings rather than presuming that the existence of blended or project-based practices necessarily indicates high-quality implementation.

From a curriculum-management perspective, such assessment is particularly valuable because decision makers require empirical evidence concerning both strengths and deficiencies within the educational system. Identifying the current status of goals and philosophy can indicate whether project-based blended education is guided by a clear conceptual orientation. Examining content can reveal whether learning materials support interdisciplinary and authentic learning. Investigating teaching methods and learning activities can indicate the extent to which instruction genuinely promotes active learning. Evaluation of technology and educational space can provide information about the adequacy of physical and digital infrastructures. Assessment practices can indicate whether learning is evaluated consistently with project-based objectives. Finally, identifying existing challenges, shortcomings, and perceived outcomes can support more targeted planning and resource allocation. Such a comprehensive approach is compatible with the view that educational quality emerges from the coordinated performance of multiple interdependent components rather than from any single instructional innovation (Oliveira-Melo et al., 2025; Saburi et al., 2025).

The upper elementary level deserves particular consideration in this regard. Students at this stage are increasingly capable of sustained inquiry, collaborative activity, problem solving, and more independent use of learning resources, while still requiring substantial instructional guidance and structured support. This

Iranian Journal of Educational Sociology
E-ISSN: 2645-3460

developmental position makes upper elementary education a particularly appropriate context for introducing project-based and blended learning practices. Emerging approaches to computational thinking in elementary education illustrate that learners at this stage can engage with sophisticated cognitive processes when activities are carefully structured and developmentally appropriate (Curi et al., 2025; Ozcan & Haslaman, 2026). Likewise, evidence regarding STEM project-based curricula suggests that elementary learners can benefit academically and cognitively from organized project experiences (Aslani et al., 2026). Yet successful implementation depends on whether curriculum components, educational environments, technologies, and pedagogical practices have been configured in ways that support these developmental possibilities.

Despite growing attention to blended learning and project-based curricula separately, there remains a need for empirical studies that examine the status of project-based curriculum elements specifically within blended elementary education. Existing research has contributed valuable insights into blended curriculum design (Saburi et al., 2025; Sharafi et al., 2021), project-based curriculum characteristics (Saeednia et al., 2024), project-based STEM education (Aslani et al., 2026), student engagement in blended settings (De Bruijn-Smolders & Prinsen, 2024), technology-supported learning (Wang et al., 2026), and the development of contemporary competencies through active curricular approaches (Curi et al., 2025; Williams et al., 2023). However, examining these dimensions in an integrated manner is necessary for determining whether the constituent elements required for project-based blended education are in a desirable condition within a specific educational system. Such evidence can provide curriculum planners, educational managers, school administrators, and teachers with a more precise foundation for curriculum improvement, professional development, technological investment, assessment reform, and the design of learning environments.

Accordingly, assessing goals and philosophy, content, teaching methods, assessment, technology, educational environment, learning activities, existing challenges and shortcomings, and outcomes can offer a comprehensive representation of the current condition of project-based curriculum implementation in blended elementary education. This multidimensional assessment is important because improvement in one curriculum element cannot necessarily compensate for deficiencies in others. Advanced technology, for example, may have limited educational value when teaching strategies remain passive, while well-designed projects may fail when assessment criteria are inconsistent with intended competencies. Likewise, strong curriculum content may not yield desired outcomes if educational environments, teacher competencies, or organizational support are inadequate. The effectiveness of blended project-based education therefore depends on systemic alignment, an issue reinforced by contemporary research emphasizing pedagogical design, engagement, professional learning, and curriculum coherence across instructional modalities (Henderikx & Vrieling-Teunter, 2025; Ma & Zhou, 2024; Masoomifard et al., 2025). In addition, the continuing evolution of digital and mobile learning environments makes systematic examination increasingly important because curriculum structures must remain responsive to emerging forms of educational interaction (Wang et al., 2026).

Therefore, the present study aimed to examine the status of project-based curriculum elements in the blended education system at the upper elementary level.

2. Methods and Materials

This study was applied in terms of purpose and descriptive-survey in terms of its method of implementation. The study population consisted of educational experts, school principals, and teachers in elementary schools in Tehran, of whom 397 were selected as the sample using cluster random sampling.

The implementation procedure of the present study was as follows. After approval of the research proposal and completion of the preliminary coordination procedures, educational experts, principals, and teachers of elementary schools were identified, and 397 of them were subsequently selected as the study sample using cluster random sampling. The importance and necessity of the study were explained to the participants, and they were informed about the ethical principles and considerations to be observed. They were also informed that their personal information would remain confidential and that the questionnaires were anonymous. After completing the demographic information form and the researcher-developed questionnaire, the participants were thanked for their participation in the study.

In addition to the demographic information form (gender, educational degree, and organizational role), the research instrument included a researcher-developed questionnaire assessing the elements of a project-based curriculum in the blended education system at the upper elementary level.

Iranian Journal of Educational Sociology
E-ISSN: 2645-3460

These elements consisted of goals and philosophy, content, teaching methods, assessment, technology, educational environment, learning activities, existing challenges and shortcomings, and outcomes. Each questionnaire item was scored using a five-point Likert scale from 1 to 3, and the score for each element was calculated as the mean score of the items corresponding to that element. The validity of the researcher-developed questionnaire was confirmed by experts, and its overall reliability was calculated as 0.95 using Cronbach's alpha. Cronbach's alpha coefficients for the individual elements were 0.89 for goals and philosophy, 0.89 for content, 0.91 for teaching methods, 0.93 for assessment, 0.89 for technology, 0.89 for educational environment, 0.92 for learning activities, 0.87 for existing challenges and shortcomings, and 0.90 for outcomes.

The data were analyzed using a one-sample t test in SPSS at a significance level of 0.05.

3. Findings and Results

The study sample consisted of 397 educational experts, school principals, and teachers from elementary schools in Tehran. The frequencies and percentages of the participants' demographic characteristics, including gender, educational degree, and organizational role, are presented in Table 1.

Table 1

Frequency and Percentage Distribution of the Demographic Characteristics of the Study Sample

Variable	Category	Frequency	Percentage
Gender	Female	239	60.20
	Male	158	39.80
Educational degree	Bachelor's degree	250	62.97
	Master's degree	129	32.49
	Doctoral degree	18	4.53
Organizational role	Teacher	291	73.30
	Principal	94	23.68
	Educational affairs and planning expert	12	3.02

According to the results presented in Table 1, the majority of the participants were female (239 participants, 60.20%), held a bachelor's degree (250 participants, 62.97%), and had the organizational role of teacher (291 participants, 73.30%). The results for the mean, standard deviation, skewness, kurtosis, and Kolmogorov–Smirnov test for the project-based curriculum elements in the blended education system at the upper elementary level—including goals and philosophy, content, teaching methods, assessment, technology, educational environment, learning activities, existing challenges and shortcomings, and outcomes—are presented in Table 2.

Table 2

Mean, Standard Deviation, Skewness, Kurtosis, and Kolmogorov–Smirnov Test Results for Project-Based Curriculum Elements in the Blended Education System at the Upper Elementary Level

Variable	Mean	SD	Skewness	Kurtosis	K–S	*p*
Goals and philosophy	33.54	1.66	-0.90	-0.44	0.04	.26
Content	33.56	1.79	-1.05	-0.10	0.06	.15
Teaching methods	33.51	14.86	-1.10	-0.14	0.08	.09
Assessment	42.91	2.02	-1.02	-0.19	0.05	.23
Technology	23.69	1.60	-1.09	-0.04	0.07	.10
Educational environment	19.06	1.02	-1.14	-0.15	0.08	.08
Learning activities	33.69	1.64	-1.16	-0.15	0.08	.07
Existing challenges and shortcomings	33.66	1.61	-1.11	-0.11	0.08	.09
Outcomes	19.13	0.92	-1.21	0.02	0.07	.06

According to the results presented in Table 2, the assumption of normality was not rejected for any of the project-based curriculum elements in the blended education system at the upper elementary level, including goals and

Iranian Journal of Educational Sociology
E-ISSN: 2645-3460

philosophy, content, teaching methods, assessment, technology, educational environment, learning activities, existing challenges and shortcomings, and outcomes, because the skewness and kurtosis values were within the ±2 range and the significance values for the Kolmogorov–Smirnov test were greater than .05. The results of the one-sample t test conducted to determine the status of the project-based curriculum elements in the blended education system at the upper elementary level—including goals and philosophy, content, teaching methods, assessment, technology, educational environment, learning activities, existing challenges and shortcomings, and outcomes—are presented in Table 3.

Table 3

Results of the One-Sample t Test for Determining the Status of Project-Based Curriculum Elements in the Blended Education System at the Upper Elementary Level

Variable	Mean	Test Value	*t*	*df*	*p*
Goals and philosophy	4.77	3	92.97	396	< .001
Content	4.78	3	95.60	396	< .001
Teaching methods	4.77	3	89.04	396	< .001
Assessment	4.74	3	76.50	396	< .001
Technology	4.73	3	75.58	396	< .001
Educational environment	4.80	3	94.20	396	< .001
Learning activities	4.80	3	94.03	396	< .001
Existing challenges and shortcomings	4.72	3	75.43	396	< .001
Outcomes	4.79	3	90.18	396	< .001

According to the results presented in Table 3, all project-based curriculum elements in the blended education system at the upper elementary level, including goals and philosophy, content, teaching methods, assessment, technology, educational environment, learning activities, existing challenges and shortcomings, and outcomes, were at a desirable level ($p < .001$).

4. Discussion and Conclusion

The present study aimed to examine the status of project-based curriculum elements in the blended education system at the upper elementary level. The findings indicated that all nine investigated elements—goals and philosophy, content, teaching methods, assessment, technology, educational environment, learning activities, existing challenges and shortcomings, and outcomes—were significantly above the hypothetical mean and therefore were evaluated as being at a desirable level. Among the components, educational environment and learning activities had the highest mean scores, followed closely by outcomes, content, goals and philosophy, and teaching methods. Assessment and technology also demonstrated favorable conditions, although their mean scores were somewhat lower than those of several other components. Existing challenges and shortcomings received the lowest mean among the examined dimensions, but its score nevertheless remained significantly higher than the criterion value. Taken together, these findings suggest that participants perceived the constituent elements of project-based curriculum within blended upper elementary education as generally well established and appropriately aligned with the requirements of contemporary teaching and learning.

The favorable status of the goals and philosophy component indicates that the underlying orientation of project-based blended education is perceived as consistent with contemporary educational priorities. A coherent curriculum requires clearly articulated educational goals that extend beyond knowledge acquisition to encompass problem solving, collaboration, creativity, responsibility, communication, and the practical application of learning. Project-based education is particularly compatible with such objectives because it structures learning around meaningful activities and authentic problems rather than isolated transmission of subject matter. The present finding is consistent with the work of Saeednia et al., who emphasized the importance of defining and validating the principal elements of a project-based curriculum and establishing coherence between its philosophical foundations and operational components (Saeednia et al., 2024). It is also compatible with research demonstrating that STEM project-based curricula can promote both academic achievement and students' perceptions of their problem-solving abilities

Iranian Journal of Educational Sociology
E-ISSN: 2645-3460

(Aslani et al., 2026). Thus, the favorable assessment of goals and philosophy may reflect an increasing recognition that elementary education should cultivate transferable competencies alongside conventional academic knowledge.

The desirable status of curriculum content may similarly be explained by the compatibility between project-based learning and contemporary approaches to organizing knowledge. In project-based curricula, content is not simply presented as a sequence of discrete facts but is used as a resource for inquiry, investigation, problem solving, and product development. Such organization can make learning more meaningful by connecting concepts with situations in which learners must actively apply them. The finding is consistent with research on computational thinking in upper elementary education, which has highlighted the value of designing learning experiences that integrate problem decomposition, reasoning, creativity, and structured problem solving into age-appropriate curricular activities (Curi et al., 2025). It also aligns with the framework proposed for integrating unplugged computational thinking activities into elementary social studies, which demonstrates that contemporary cognitive competencies can be incorporated into ordinary subject areas rather than treated as separate curricular domains (Ozcan & Haslaman, 2026). Project-based content is therefore particularly suitable for blended education because digital resources, classroom interaction, interdisciplinary tasks, and authentic problems can be combined to extend learning beyond textbook-based instruction.

The favorable finding concerning teaching methods suggests that instructional practices in the examined context are perceived as sufficiently compatible with active and learner-centered education. Project-based curricula require a shift in the teacher's role from primarily delivering information toward facilitating inquiry, organizing collaborative learning, providing scaffolding, monitoring progress, and supporting students in constructing solutions. Blended learning further expands this role by requiring teachers to coordinate face-to-face and online activities. Previous research on effective engagement in blended learning has emphasized that instructional design and purposeful learner participation are central to successful blended education (De Bruijn-Smolders & Prinsen, 2024). Similarly, studies of blended learning have shown that the effectiveness of this approach depends on the deliberate integration of different instructional environments rather than merely supplementing conventional teaching with digital materials (Ma & Zhou, 2024). The favorable status of teaching methods in the present study may therefore indicate that educators increasingly recognize the importance of combining teacher guidance with active student participation across physical and digital environments.

The result regarding teaching methods may also be understood in relation to professional learning and the competencies required for implementing innovative educational approaches. Teachers and educational managers need sufficient capacity in problem solving, digital learning, instructional organization, and pedagogical decision making if blended project-based education is to function effectively. Masoomifard et al. examined problem-solving skills training through e-learning and blended learning approaches among educational managers, highlighting the potential of technology-supported professional education for developing competencies associated with creativity and problem solving (Masoomifard et al., 2025). Moreover, communication and coordination within schools are important prerequisites for successful educational innovation. Research on elementary school principals in Tehran has emphasized the importance of communication skills in school management (Moradi et al., 2025). Consequently, the favorable assessment of project-based teaching methods may reflect not only classroom-level instructional practices but also broader organizational capacities that support teacher collaboration, communication, and implementation.

Assessment was also found to be in a desirable condition. This finding is important because evaluation in project-based learning must extend beyond conventional tests of factual knowledge. Students engaged in projects demonstrate learning through multiple processes, including inquiry, planning, collaboration, problem solving, decision making, communication, and production of final outputs. Accordingly, assessment should capture both the process of learning and its products. The current result is compatible with research emphasizing the need for comprehensive and context-sensitive models of academic achievement evaluation at the elementary level (Vafaeifar et al., 2022). Project-based blended education can further expand assessment opportunities through digital portfolios, continuous feedback, online assignments, self-assessment, peer assessment, and teacher observation. The favorable status of assessment identified in this study may therefore suggest that evaluation practices are increasingly being aligned with broader definitions of student learning. Nevertheless, because assessment had a somewhat lower mean than several other elements, continued attention to

E-ISSN: 2645-3460

developing authentic, formative, and performance-based assessment procedures may still be warranted.

Technology was likewise rated above the criterion level, demonstrating a favorable status within the blended education system. Technology constitutes a central enabling component of blended learning because it provides access to digital resources, asynchronous and synchronous communication, multimedia materials, interactive activities, and flexible learning opportunities. However, the educational value of technology depends on its integration with curricular objectives and pedagogical practices. The present finding is consistent with systematic evidence showing that acceptance and satisfaction in blended learning are influenced by factors such as the organization of the learning environment, usability, interaction, and instructional support (Cao et al., 2025). It is also supported by recent developments in mobile-first blended learning, which demonstrate the growing potential of mobile technologies to reorganize educational access and interaction when they are integrated purposefully into instructional design (Wang et al., 2026). The desirable status of technology in the current study therefore may indicate that technological tools are increasingly being perceived as integral components of learning rather than as supplementary resources.

The educational environment received one of the highest mean scores among all investigated elements. This result suggests that the physical and virtual spaces in which project-based blended learning occurs are perceived as particularly suitable for supporting learning. Effective blended environments should allow movement between individual and collaborative activities, physical and digital resources, synchronous and asynchronous interaction, and teacher-directed and student-directed learning. Research on social configurations in blended teacher learning groups has demonstrated that face-to-face and online environments can support different forms of interaction and participation (Henderikx & Vrieling-Teunter, 2025). Although that research focused on teacher learning, the underlying principle is relevant to school education: different learning spaces offer distinctive affordances, and effective blended design uses these environments complementarily. Earlier curriculum development research has likewise emphasized the importance of systematically designing curriculum components around the requirements of blended learning rather than simply introducing technological tools into conventional educational structures (Sharafi et al., 2021). Thus, the high rating of educational environment may reflect increasing availability and acceptance of flexible spaces that facilitate both classroom and technology-mediated learning.

Learning activities also received one of the highest ratings. This is particularly consistent with the fundamental logic of project-based learning, in which learning occurs through purposeful action. Students participate in inquiry, information gathering, problem analysis, collaboration, creation, presentation, reflection, and revision rather than remaining passive recipients of information. The effectiveness of project-based curricula is therefore closely dependent on the quality of learning activities and their connection with instructional objectives. The favorable result is consistent with Williams et al., who demonstrated the feasibility of using project-based curricula to engage young learners with complex topics involving artificial intelligence and ethics (Williams et al., 2023). It also corresponds with research on computational thinking interventions at the upper elementary level, where active and structured learning activities are central to developing complex cognitive competencies (Curi et al., 2025). The high score obtained for learning activities may therefore indicate that project-based blended education is particularly strong in providing students with active opportunities to apply knowledge, collaborate, create products, and engage with meaningful problems.

The favorable evaluation of existing challenges and shortcomings requires more cautious interpretation. Unlike positively framed curriculum components, this dimension concerns difficulties that may impede effective implementation. Its placement at the lower end of the component means suggests that participants recognize that challenges remain even though the overall condition was statistically favorable. Such challenges may include unequal access to technological resources, insufficient teacher preparation, difficulties in coordinating online and face-to-face activities, time limitations, variations in students' readiness for independent learning, and inconsistencies in institutional support. Systematic research on blended learning has shown that successful participation depends substantially on effective engagement strategies and careful learning design (De Bruijn-Smolders & Prinsen, 2024). Similarly, research examining acceptance and satisfaction with blended learning indicates that technological, pedagogical, and organizational factors can influence how learners experience blended environments (Cao et al., 2025). Therefore, the favorable overall assessment should not be interpreted as evidence that implementation is free from barriers; rather, it suggests that the current system possesses

Iranian Journal of Educational Sociology
E-ISSN: 2645-3460

generally positive conditions while still requiring continued attention to implementation problems.

The favorable status of outcomes indicates that participants perceived project-based blended education as capable of generating beneficial educational consequences. These outcomes may include stronger academic learning, greater engagement, enhanced problem-solving abilities, improved collaboration, increased technological competence, and greater learner responsibility. This interpretation is consistent with findings concerning the effectiveness of project-based STEM curricula for improving academic achievement and problem-solving perceptions among elementary students (Aslani et al., 2026). It is also in line with evidence supporting the educational effectiveness of blended learning when learning activities are coherently designed and implemented (Ma & Zhou, 2024). Furthermore, contemporary applications of project-based curricula to topics such as artificial intelligence and ethics demonstrate that project-centered approaches can facilitate not only disciplinary learning but also complex cognitive and ethical engagement (Williams et al., 2023). Accordingly, positive perceptions of curriculum outcomes may derive from the capacity of project-based blended education to combine academic objectives with broader competencies needed for contemporary life.

The findings can also be interpreted within the broader context of elementary curriculum development. Saburi et al. specifically identified curriculum elements based on blended learning in elementary schools, emphasizing that effective blended education requires attention to a range of interconnected curricular components (Saburi et al., 2025). The current study extends this perspective by showing that project-based curriculum elements—including goals, content, teaching methods, assessment, technology, educational environment, learning activities, challenges, and outcomes—were all perceived favorably. This multidimensional pattern is important because curriculum quality depends on systemic coherence. A strong technological infrastructure cannot compensate for poorly designed learning activities, just as innovative teaching methods cannot achieve their full potential when curriculum goals, assessment, or educational spaces are inconsistent with them. The findings therefore support a systemic conceptualization of blended project-based education in which educational effectiveness emerges from alignment among multiple interdependent components.

The results additionally have implications for understanding curriculum quality in relation to wider educational goals. International comparisons based on Sustainable Development Goal 4 indicators demonstrate that educational systems differ substantially in their capacity to provide high-quality and sustainable learning opportunities (Oliveira-Melo et al., 2025). Although the present study was conducted within a specific educational context, the favorable evaluation of multiple curriculum dimensions suggests that blended project-based approaches may represent one mechanism through which educational systems can respond to the increasing demand for flexible, competency-oriented, and technology-supported education. At the same time, curriculum innovation must remain responsive to the developmental and psychosocial characteristics of learners. Educational research emphasizing the relationship between school environments and children's developmental and mental health outcomes underscores the need to ensure that innovation does not focus exclusively on academic performance or technology but also supports students' social and emotional development (Sehgal & Forgey, 2025).

The findings also correspond with broader conceptions of elementary education as a foundation for citizenship, participation, and social development. Comparative research on citizenship education curricula at the elementary level has shown that school curricula play an important role in shaping competencies, values, responsibilities, and forms of social participation from an early age (Tamjidtash & Mojalal Chobgalo, 2014). Project-based blended curricula may be especially suitable for such purposes because collaborative projects can provide opportunities for students to negotiate responsibilities, communicate with peers, solve shared problems, and relate academic content to social issues. Accordingly, the desirable status of the investigated components may have implications beyond immediate instructional efficiency; it may also indicate the potential of this curriculum orientation to contribute to broader educational and social objectives.

Overall, the findings demonstrate a generally coherent and favorable picture of project-based curriculum elements in the blended education system at the upper elementary level. The convergence of positive evaluations across all nine dimensions suggests that participants did not view curriculum quality as limited to one particular component, such as technology or teaching methods. Rather, favorable perceptions extended across philosophical, pedagogical, technological, environmental, evaluative, and outcome-related dimensions. This pattern is consistent with research emphasizing the systemic nature of blended curriculum

Iranian Journal of Educational Sociology
E-ISSN: 2645-3460

design (Saburi et al., 2025; Sharafi et al., 2021) and with studies demonstrating the importance of learner engagement, technological integration, and carefully structured active learning (De Bruijn-Smolders & Prinsen, 2024; Wang et al., 2026). The findings therefore reinforce the view that project-based blended education is most appropriately understood as an integrated curricular model in which technology supports, rather than substitutes for, purposeful pedagogy.

The present study had several limitations that should be considered when interpreting its findings. First, the participants consisted only of educational experts, principals, and elementary school teachers in Tehran; therefore, the findings may not be directly generalizable to schools in other provinces, rural areas, or educational systems with different socioeconomic, technological, and organizational conditions. Second, the study employed a descriptive-survey design, which allows assessment of participants' perceptions of the existing condition but does not permit causal conclusions regarding the effects of project-based curriculum elements on students' learning outcomes. Third, data were collected using a researcher-developed self-report questionnaire, and responses may therefore have been influenced by social desirability, personal experiences, organizational expectations, or respondents' different interpretations of questionnaire items. Fourth, students and parents were not included among the respondents, although their experiences could provide additional perspectives on the implementation and effectiveness of blended project-based education. Finally, the study evaluated the overall status of curriculum elements at a single point in time and did not examine variation in implementation across schools, subjects, grade levels, or technological infrastructures.

Future studies are recommended to replicate the present research in different cities, provinces, rural and urban regions, and educational contexts in order to assess the stability and generalizability of the findings. Comparative studies could examine whether the status of project-based blended curriculum elements differs according to school type, socioeconomic context, grade level, teacher experience, access to technology, or organizational resources. Future research could also employ mixed-method designs in which quantitative surveys are complemented by interviews, focus groups, classroom observations, document analysis, and analysis of online learning environments to obtain a more comprehensive understanding of actual implementation. Experimental and longitudinal studies are needed to determine whether improvements in specific curriculum elements lead to measurable changes in academic achievement, engagement, creativity, problem solving, collaboration, self-regulated learning, and digital competence. It would also be valuable to obtain data directly from students and parents and to examine relationships among the nine identified curriculum elements through structural equation modeling or other multivariate approaches in order to clarify which components have the strongest direct and indirect associations with educational outcomes.

Based on the findings, curriculum planners and educational administrators are advised to maintain the systemic alignment of goals, content, teaching methods, assessment, technology, educational environments, and learning activities when developing project-based blended education at the upper elementary level. Schools should provide teachers with continuing professional development focused on project design, facilitation of collaborative inquiry, digital pedagogy, formative assessment, classroom management in blended settings, and differentiated support for students with varying levels of technological and academic readiness. Educational authorities should strengthen technological infrastructure while ensuring that technology selection is driven by pedagogical objectives rather than by novelty alone. Schools should also create flexible physical and virtual learning environments that allow individual work, teamwork, inquiry, presentation, feedback, and reflection. Assessment systems should include authentic and process-oriented methods such as portfolios, project rubrics, peer and self-assessment, and continuous feedback. Finally, administrators should systematically identify implementation barriers, collect feedback from teachers, students, and families, and use the resulting evidence to continuously improve project-based blended curriculum practices.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Iranian Journal of Educational Sociology
E-ISSN: 2645-3460

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We hereby thank all participants for agreeing to record the interview and participate in the research.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

All procedures performed in studies involving human participants were under the ethical standards of the institutional and, or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

References

Aslani, R., Mahmoodi, F., Taghipour, K., & Dehghanzadeh, H. (2026). Design and Evaluation of the Effectiveness of a STEM Project-Based Curriculum on Problem-Solving Perception and Academic Achievement of Elementary Students. *Journal of Modern Psychological Researches*, *20*(80), 46-64. https://doi.org/10.22034/jmpr.2025.67124.6676

Cao, W., He, Q., Zhang, Q., Tang, Y., Chen, C., & He, Y. (2025). Acceptance or Satisfaction of Blended Learning among Undergraduate Nursing Students: A Systematic Review of the Literature. *Nurse Education Today*, *147*, 106589. https://doi.org/10.1016/j.nedt.2025.106589

Curi, M. E., Gerosa, A., Viera, M., & Carboni, A. (2025). A Review of Computational Thinking Interventions in Upper Elementary Education. *Computers and Education Open*, *9*, 100252. https://doi.org/10.1016/j.caeo.2025.100252

De Bruijn-Smolders, M., & Prinsen, F. R. (2024). Effective Student Engagement with Blended Learning: A Systematic Review. *Heliyon*, *10*(23), e39439. https://doi.org/10.1016/j.heliyon.2024.e39439

Henderikx, M., & Vrieling-Teunter, E. (2025). Facilitating Blended Learning in Teacher Learning Groups: Experiencing Social Configuration during Face-to-Face and Online Meetings. *Journal of Professional Capital and Community*, *11*(1), 95-111. https://doi.org/10.1108/JPCC-09-2024-0164

Ma, C., & Zhou, W. (2024). Effectiveness of Blended Learning in Health Assessment Course among Undergraduate Nursing Students: A Quasi-Experimental Study. *Teaching and Learning in Nursing*, *19*(4), 715-721. https://doi.org/10.1016/j.teln.2024.07.007

Masoomifard, M., Shayestehfar, A., Alipour, V., & Nouri, Z. (2025). An Investigation into the Effect of In-Service Training of Problem-Solving Skills with Two Approaches: E-Learning and Blended Learning on the Development of Creativity of Educational Managers in Schools in Ray City. *Sociology of Education*, *11*(3), 1-12. https://doi.org/10.61838/Soe.11.3.4

Moradi, R., Benisi, P., & Khorshidi, A. (2025). Presenting a Communication Skills Model of Elementary First Period Schools Principals in Tehran City Based on a Mixed Approach. *Sociology of Education*, *11*(3), 1-14. https://doi.org/10.61838/kman.soe.11.3.8

Oliveira-Melo, F. G., Araujo, D. D. C., Barbosa, A. S., & Sant'Anna, A. M. O. (2025). Clustering National Higher Education Systems Worldwide Using Sustainable Development Goals 4 Indicators and Self-Organizing Maps. *International Journal of Educational Management*, *40*(1-2), 268-301. https://doi.org/10.1108/IJEM-12-2024-0834

Ozcan, E., & Haslaman, T. (2026). Integrating Unplugged Computational Thinking Activities into Elementary Social Studies Education: A Framework for Pre-Service Teacher Training. *Thinking Skills and Creativity*, *61*, 102148. https://doi.org/10.1016/j.tsc.2026.102148

Saburi, K., Ahmadi, P., Samadi, P., & Ghoraishi Khorasgani, M. S. (2025). Identifying Curriculum Elements Based on Blended Learning in Elementary School. *Journal of Research in Teaching*, *13*(2), 28-55. https://doi.org/10.22034/trj.2025.142147.2066

Saeednia, A., Mahmoodi, F., Imanzadeh, A., & Taghipour, K. (2024). A Qualitative Review of the Characteristics of the Main Elements of the Project-Based Curriculum and Its Validation. *Journal of Curriculum Studies*, *18*(71), 67-98. https://doi.org/10.22034/jcs.2024.174367

Sehgal, P., & Forgey, E. (2025). Clinical Considerations around the Development of Boys and Mental Health Outcomes in the Education System. *Child and Adolescent Psychiatric Clinics of North America*, *34*(4), 605-615. https://doi.org/10.1016/j.chc.2025.05.007

Sharafi, S., Sabagh Hasanzadeh, T., & Zohour Parvandeh, V. (2021). Design and Development of a Curriculum with Blended Learning Approach for High School. *Pouyesh Journal in Teaching Educational Sciences and Counseling*, *6*(13), 91-118. https://dor.isc.ac/dor/20.1001.1.2783154.1399.1399.13.6.8

Tamjidtash, E., & Mojalal Chobgalo, M. A. (2014). A Comparative Study on Citizenship Education Curriculum in Elementary Schools of the Islamic Republic of Iran and Japan. *Journal of Socio-Cultural Changes*, *11*(1), 18-32. https://sanad.iau.ir/en/Journal/aukh/Article/1075297

Vafaeifar, G., Ghaderi, M., & Maleki Avarsin, S. (2022). Designing and Validating of Academic Achievement Evaluation Pattern in Elementary School Multi-Grade Classes. *Sociology of Education*, *8*(2), 133-142. https://doi.org/10.22034/ijes.2021.541983.1184

Wang, L., Ge, Y., & Xu, X. (2026). Mobile-First Blended Learning for Pharmacology Education Reform. *International Journal of Mobile and Blended Learning*, *18*(1), 408838. https://doi.org/10.4018/IJMBL.408838

Williams, R., Ali, S., Devasia, N., DiPaola, D., Hong, J., & Kaputsos, S. P. (2023). AI + Ethics Curricula for Middle School Youth: Lessons Learned from Three Project-Based Curricula. *International Journal of Artificial Intelligence in Education*, *33*(2), 325-383. https://doi.org/10.1007/s40593-022-00298-y

Iranian Journal of Educational Sociology
E-ISSN: 2645-3460