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Comparative Analysis of Project Management Methodologies in Educational Institutions: International and Kazakhstani Context

Alina Biksitova

School of Creative Industries, Astana IT University, Astana, Kazakhstan

A B S T R A C T

This article presents a comparative descriptive analysis of project management practices in the field of education, with a particular focus on international experiences and the current state of implementation in Kazakhstan. Drawing on a wide range of case studies and scholarly research, the paper highlights the transformative role of project-based approaches in enhancing institutional adaptability, strategic alignment, and educational quality. It explores various dimensions of project management in universities, including the establishment of project management offices, the use of digital platforms for competency assessment, the integration of agile methodologies, and the application of blended project-based learning models. Special attention is given to challenges in the Kazakhstani context, such as bureaucratic management structures, lack of methodological support, and low digital maturity. The analysis identifies key differences and similarities between international and domestic practices and offers actionable recommendations for developing more robust and integrated project management systems in higher education institutions. These include the formalization of project offices, the institutionalization of project approaches, capacity-building for academic staff, digital infrastructure enhancement, and the cultivation of an internal culture supportive of change and innovation. Ultimately, the article argues that project management can serve as a strategic mechanism for modernizing educational organizations and aligning them with the demands of the 21st-century knowledge economy.

Keywords: project management, project management practices, higher education, educational organizations.

1. Introduction

In the face of the accelerating global change, higher education institutions are increasingly compelled to adopt more flexible, innovative, and results-oriented approaches to organizational development and instructional design. Among the most promising tools in this transformation is project management, a discipline that enables educational organizations to plan, execute, and evaluate complex initiatives within constrained environments marked by limited resources, tight timelines, and evolving stakeholder expectations.

While PM has long been associated with business and engineering domains, its application in education is gaining traction as institutions recognize the need for structured yet adaptive methods to improve strategic alignment, operational efficiency, and student-centered outcomes. Internationally, universities are embedding PM practices at both institutional and pedagogical levels, from establishing Project Management Offices and integrating PM into curricula, to leveraging digital platforms and agile methodologies that promote collaboration, accountability, and continuous improvement.

In Kazakhstan, however, the diffusion of project-based approaches in higher education remains uneven and often fragmented. Despite growing interest and policy-level support, systemic barriers such as hierarchical governance models, insufficient project competencies, and underdeveloped digital infrastructure hinder meaningful adoption. This paper seeks to bridge that gap by offering a comparative overview of global and domestic practices, identifying key enablers and obstacles, and proposing pathways for embedding project management as a core component of educational modernization.

2. International experience in the application of project management in educational practice

Modern challenges in the field of education require educational organizations to be more flexible, transparent, and results oriented. In this regard, project management is becoming increasingly important as a universal approach that ensures the purposeful and effective achievement of educational and strategic goals. It allows for the systematic organization of initiatives of various levels of complexity, from the development of new curricula to the digitalization of university processes, and their implementation in conditions of limited resources, deadlines, and rapidly changing external requirements.

At the international level, there is a tendency towards the institutionalization of design practices in universities, the integration of design approaches into educational programs, and the active introduction of digital tools. Within the framework of this section, a systematic review of foreign PM practices in education is presented, key areas of application, methods and tools, as well as their pedagogical and organizational value are identified.

2.1 International experience in the application of project management in educational practice

An example of a systematic approach to strategic management through projects is the analysis of Institutional Development Plans (IDP) at Brazilian universities (Prazeres, Tereso & Silva, 2020). The study showed that although the terminology of the PM is widely presented in these documents, it is most often used in a disjointed manner, without a single methodological logic and the relationship between goals, objectives and indicators. As a solution, the authors propose the implementation of a Project Management Office, which can increase project consistency, standardize processes, and enhance the overall manageability of the institute.

This trend reflects an international trend: the presence of PMO in universities is becoming an indicator of the maturity of their project management system, allowing them to respond quickly to challenges and implement a multi-project environment more effectively.

2.2 Digital platforms and competence assessment

Technology is becoming a key aid in teaching PM. Makatsoris (2009), in a case study conducted by Brunel University (UK), described the introduction of the Cycloid ICT tool, a system for self-assessment and monitoring of the competencies of MSc students in higher education. The use of Cycloid made it possible to adapt the course content to the initial level of the group, as well as to identify individual educational trajectories. This approach promotes the development of managerial and soft skills, including the ability to introspect, plan, and make decisions.

Digital platforms are also used to manage students' project tasks, track progress, and automate feedback – especially in distance or hybrid learning formats.

2.3 Hybrid models and project-based learning

Blended Project-Based Learning is a successful combination of full-time and distance learning with the implementation of practice-oriented projects. Barbosa (2022) investigated the application of this model in the PM course in Brazil, where students with high readiness for the hybrid format showed higher satisfaction and academic achievement. This indicates the need to take into account not only the teaching methodology, but also the peculiarities of students' perception, their digital literacy and self-organization.

Studies by Lim et al. (2019) and Bohle Carbonell et al. (2013) confirm that the successful implementation of BPBL depends on the methodological training of teachers, the availability of technical infrastructure and a clear course logic. In such conditions, PM becomes not only a subject of study, but also its organizational model.

2.4 Agile and Scrum in Project Management training

As part of the training of future managers, the use of agile methodologies – Agile, Scrum and their derivatives - is gaining popularity. Neumann and Baumann (2021) described the use of eduScrum in a master's degree program in Germany, where students independently formed teams, assigned roles, set goals, and conducted projects based on Scrum principles. This contributed to the development of competencies such as teamwork, flexibility, leadership, and self-organization, qualities that are in demand in the modern management landscape.

Such learning models allow students to master management not theoretically, but through experience, error, reflection, and team support, which significantly enhances the depth of learning.

2.5 Gamification and educational co-creation

Innovative forms of engagement, such as gamification, also find their place in the training of project managers. The study by Gkogkidis and Dacre (2021) describes the experience of joint creation of board educational games by students and teachers as a means of mastering PM. This approach enhances creativity, develops teamwork and critical thinking skills, and engages students in the collaborative creation of knowledge and an educational environment.

Despite certain challenges in standardizing such approaches, gamification proves its effectiveness in the context of soft skills, motivation, and engagement.

2.6 An example of a design school and individual trajectories

Special attention should be paid to the practice of VLACS (Virtual Learning Academy Charter School, USA), which uses a personalized learning model based on project assignments. Students not only master academic material, but also solve real-world problems, create products, and receive mentoring. This approach contributes to the formation of 21st century skills: critical thinking, initiative, self-organization, and digital literacy.

Table 1 - International practices.

Practice	Country	Method / Instrument	Effect
Institutional PM	Brazil	Institutional Development Plans, Project Management Office	Improving consistency and efficiency
Digital self-assessment	United Kingdom	Cycloid Platform	Individualization of training, soft skills
Blended Project-Based Learning	Brazil, Europe	BPBL	Flexibility, engagement, student success
Agile / eduScrum	Germany	The Scrum approach in the Master's program	Teamwork, leadership practice
Gamification	International	Co-creation of educational games	Motivation, communication and project skills
Personalized learning	USA	VLACS, the design model	Independence, skills of the 21st century

International experience confirms the importance of project management as a transformational tool in education. Regardless of the context – be it university, college, or school – the implementation of project approaches facilitates the transition from administrative logic to a flexible, results-oriented system. The success of these approaches is based on institutional support, the availability of trained personnel, digital infrastructure, and a focus on developing key management and meta-skills.

Student engagement, improving the quality of programs, developing competencies, and being ready for change are the key effects of implementing learning disabilities in education. That is why international practices can become a guideline for countries seeking to modernize their educational environment.

3. Project management in educational institutions of Kazakhstan

The development of project management systems in Kazakhstani educational institutions is taking place against the background of modernization of higher education, digitalization of management and the desire for international accreditation. Nevertheless, the introduction of PM in this area faces several institutional, organizational and cultural barriers. This section provides an analytical review of publications on the Kazakhstani experience in the field of educational institutions, including examples of implementation at universities, difficulties in implementation and development prospects.

3.1 Organizational context and background

According to Mukhtarova and Smith (2014), the reforms in higher education in Kazakhstan initiated after the collapse of the USSR are aimed at decentralization, increasing the autonomy of universities and integration into the international educational space. Since the 2000s, universities have been applying quality standards (for example, ISO 9000), participating in the Bologna process, and striving for international accreditation. These processes require institutional changes, for which the PO is seen as a necessary tool.

3.2 Example of implementation: T. Ryskulov Kazakh University of Economics

A study by Mukhtarova and Smith (2014) describes an attempt to implement a project approach in preparation for international ECBE accreditation. Several projects were initiated, including the redesign of the university website, the reform of the career center, the creation of an alumni association, and the reorganization of the international department. The projects were implemented in the logic of action research but faced many difficulties:

Lack of planning and strategic thinking

Weak support from management and staff

Centralized, hierarchical management style

Lack of human and time resources

Low staff motivation

Resistance to change

The website redesign project was the only one that was implemented, but with serious delays and deviations from plans. Lack of employee engagement, lack of a formalized team and supporting infrastructure proved to be critical factors hindering successful completion.

3.3 International University of Information Technology: Digitalization and Change management

Berdykulova et al. (2021) analyze the design and management experience of the International University of Information Technology (IITU) in the era of digitalization. The authors argue that despite advances in automation and digital solutions, the organizational structure of the university remains hierarchical and bureaucratic, which hinders the flexible implementation of changes. The application of the Maturity Model has shown that IITU has reached only the initial level of readiness for digital transformation, especially in aspects of IT management, business processes and data management.

The proposed solution is the implementation of project and change management structures, the creation of an appropriate department and the revision of the management structure. The authors emphasize the need to move from disciplinary departmentalization to a project-oriented approach that can ensure horizontal communication, staff engagement, and timely decision-making.

3.4 Quality and Communication Analysis: a comparative study of IITU and NAU

As part of the study, Berdykulova et al. A survey was conducted among students and interviews with the administrative staff of two universities – International IT University and Northern Arizona University. The results showed that at IITU there is a direct relationship between the level of communication between teachers and the academic success of students, whereas at NAU no such relationship was found. This indicates the need to improve the institutional culture of communication in Kazakhstani universities and create conditions for student support.

3.5 Methodological approaches: franchise and rating of design universities

Glushchenko (2021) proposes the development of a system mechanism for managing the higher design education segment, including the introduction of a franchise and the creation of a national rating of design universities. According to the author, project-based learning should be not only an educational methodology, but also an organizational strategy involving the implementation of interdisciplinary projects in the interests of the real sector of the economy. This will allow:

To integrate universities into the sixth technological order

To form an entrepreneurial culture in universities

To increase the practice-oriented educational programs

To ensure the development of students' managerial and project competencies

Project-based education is considered as a means of forming competencies of the 21st century and a key mechanism for adapting universities to the conditions of a post-industrial society.

4. Comparative analysis of international and Kazakhstani project management practices in educational institutions

Project management in the educational field is actively developing both in international practice and in Kazakhstan, however, the degree of maturity, approaches to implementation and the degree of institutionalization vary significantly. The purpose of this section is to compare approaches, identify similarities and differences, and offer recommendations for strengthening project management systems in domestic universities based on the best foreign practices.

Table 2 – Comparative table.

Criteria	International	Kazakhstani	Coincidences	Differences
Availability of Project Management Office	Partial implementation	Recommended, but not implemented institutionally	-	Insufficient institutionalization in Kazakhstan
Change support	Agile/Scrum, agile models, change management	Centralized management, weak support for changes	-	Flexibility vs hierarchy
Digital tools	Cycloid, online platforms, LMS, e-learning	Automation is present, but maturity is low	Active in IT sector, but the maturity level is different	-
Methods of teaching PM	BPBL, gamification, co-creation, eduScrum	Using project logic in individual initiatives	-	Methodology is developed in international practices, fragmented in Kazakhstan

An approach to strategic change	Integration of PM into institutional planning	Private projects, weak connection with strategy	Understanding of necessity	Level of realization
Focus on soft skills	A mandatory component of MS programs in PM	It is mentioned in the strategies, but there is no system implementation	It is mentioned in the strategies, but there is no system implementation	Different levels of prioritization
Teacher training	Professional development, implementation of pedagogical strategies	Poor methodological support	-	The poorly institutionalized role of personnel

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Based on the comparative analysis conducted, the following conclusions can be drawn:

1. Strategic difference: international practice demonstrates a systematic approach with the introduction of Project Management Office, the adaptation of the organizational structure and the active involvement of IT platforms. Kazakhstan's experience is fragmented, limited by individual projects and initiatives.

2. Cultural barrier: a vertically hierarchical management model dominates in Russian universities, which prevents the introduction of flexible models such as agile, scrum and co-creative learning.

3. Methodological support: in international practice, the emphasis is on the continuous development of staff (teachers, project coordinators), while in the Kazakhstani context there is a shortage of methodological training and formalized roles in educational institutions.

4. Digitalization and competence assessment: despite the presence of automation in Kazakhstani universities, the level of maturity of digital project management remains low.

5. Recommendations

A comparative analysis shows that Kazakhstan can use rich international experience as a basis for reforming its own model of project management in education. However, this requires a systematic approach, changes in management practices and the active involvement of all participants in the educational process.

1. The formal establishment of Project Management Offices within the structure of universities allows for centralized oversight and coordination of all project activities. This enables institutions to maintain alignment between projects and strategic goals, enhance transparency and accountability, and ensure consistent use of methodologies and tools across departments. A mature PMO can also serve as a hub for training, mentoring, and supporting faculty and staff involved in project work, building a sustainable culture of project-based thinking.

2. Project management practices should not exist as isolated experiments or occasional initiatives. Instead, they must be embedded into the core institutional processes, including long-term planning, budgeting, and performance evaluation. Making project management part of strategic planning allows universities to be more adaptive, results-oriented, and responsive to internal and external challenges. Institutionalization also implies defining governance structures, setting clear roles and responsibilities, and integrating project thinking into all levels of decision-making.

3. Effective implementation of project management in education requires capable personnel who are familiar with modern pedagogical and managerial tools. Therefore, it is essential to provide continuous professional development programs for teachers, administrators, and project coordinators. These programs should cover agile methodologies, Blended Project-Based Learning, digital tools for planning and monitoring, as well as soft skills such as communication, leadership, teamwork, and emotional intelligence. Building this capacity empowers staff to lead innovation and change with competence and confidence.

4. Digital tools play a vital role in enhancing project management capabilities in educational settings. Universities should aim to integrate IT systems that support project planning, execution, and evaluation. For example, platforms like Cycloid can be used to assess students' skills and progress, personalize learning experiences, and streamline communication among stakeholders. A higher level of digital maturity allows for better data-driven decisions, greater scalability of initiatives, and improved overall efficiency of institutional operations (Vasilache, Capatina, & Schin, 2018).

5. Creating a supportive internal environment is key to the long-term success of project management practices (Patsala & Kefalas, 2016). Universities must nurture a culture that encourages initiative, experimentation, and colaborative problem-solving. This involves promoting open communication, flattening hierarchical structures to facilitate cross-functional teamwork, and recognizing contributions to innovation and improvement. By fostering a sense of ownership and inclusion, institutions can motivate staff to actively engage in transformation processes and adapt more readily to change.

Modern educational systems face a challenge not only to transfer knowledge, but also to teach management in conditions of uncertainty, digital transformation and high project dynamics. This requires universities not only to introduce new technologies, but also to fundamentally restructure organizational, methodological and pedagogical logic (Paľová & Vejačka, 2023). Let us investigate the mechanisms for implementing innovative approaches in project management training, drawing on international and local experience.

One of the most effective mechanisms for implementing project-based learning and Agile methodologies has become the use of capstone projects, which are the final training modules in which students work on real-world tasks from external customers. These projects make it possible to integrate disciplines, attract industrial partners, and evaluate the competencies developed in the applied environment (Marnewick, 2023). Agile approaches are applicable in the sprint format: each academic week is structured as a separate stage of product development, with retrospectives, presentations, and feedback from the customer or teacher.

For universities in Kazakhstan, such a mechanism can be implemented as part of the final bachelor's and master's degree courses, with an emphasis on project modules supported by the IT infrastructure and partner faculties.

One of the key conditions for the scalability of innovation is the availability of a digital educational environment that supports not only learning, but also project coordination. This role is played by LMS (Moodle, Canvas), supplemented with plug-ins for feedback, visualization of progress, peer review and auto-assessment. In addition, specialized solutions are emerging: for example, EduFlow for coordinating project work and exchanging feedback, or Teamwork and Trello as educational analogues of real project management tools. The implementation of such platforms requires not so much technical as organizational efforts: the creation of digital manuals, the adaptation of interfaces to educational tasks, and the training of teachers in scenario use.

Innovative practices involve a transition from a lecture-seminar model to flexible interaction formats: workshops, design laboratories, and advisory sessions. The teacher here acts as a facilitator, coordinator, and mentor, and the students as members of a project team with their own tasks, responsibilities, and progress metrics.

The mechanisms for implementing such formats can be implementation of evening or intensive sessions (bootcamp models); interdisciplinary teams of students from different programs; elective modules focused on developing competencies (soft skills, digital skills); the use of design studios, where the student defends not the exam, but the product.

Even the most promising innovations may not take root without institutional support. The following organizational mechanisms are needed: appointment of project training coordinators at the faculties; creation of methodological support centers for blended learning, PBL and Agile; introduction of motivation systems for teachers using innovative methods; providing feedback from graduates and the industry to update the content.

Innovations in teaching project management are not just methodological innovations, but the transformation of the very architecture of the educational process. Successful international and local cases show that the key to sustainable innovation is institutional infrastructure, faculty support, and a focus on real-world challenges. The introduction of capstone projects, flexible formats, digital platforms and project tracks will allow educational organizations in Kazakhstan not only to approach international standards, but also to create unique models for training new generation specialists.

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