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Original Article
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Paradigmatic Shift in Pedagogical Design: Transforming Syllabus Development for Innovative Higher Education

Abstract

Introduction. The study addresses the problem of modernizing instructional practices in higher education by focusing on how instructors understand and apply pedagogical design in course and syllabus development. It emphasizes the shift from traditional approaches to innovative methods that incorporate digital resources, interactive strategies, and student-centered learning. **Methodology and Methods.** A mixed methodological framework was applied, combining surveys, semi-structured interviews, and content analysis of syllabi. Data were collected from instructors with diverse disciplinary backgrounds and teaching experience. The analysis focused on the formulation of learning outcomes, assessment strategies, and the integration of digital technologies. **Results.** The findings revealed that although instructors recognize the value of pedagogical design, they often lack systematic training and institutional support. Many syllabi displayed unclear or unmeasurable learning outcomes, limited use of varied assessment methods, and inconsistent incorporation of digital tools. These shortcomings indicate weak constructive alignment between objectives, teaching activities, and evaluation criteria. **Scientific novelty.** The study contributes new insights into the state of pedagogical design practices in higher education, particularly in relation to the integration of digital and interactive methods. It highlights the structural misalignments that hinder effective curriculum development and advances the understanding of pedagogical design as both a theoretical and practical framework. **Practical significance.** The research provides recommendations for improving professional development, strengthening methodological support, and investing in infrastructural resources. These measures can enhance the quality of course design, promote innovative teaching practices, and ensure greater coherence in aligning learning outcomes with instructional strategies.

Keywords: pedagogical design, constructive alignment, backward design, ADDIE, syllabus, higher education.

Introduction. As an essential part of social life, the educational system is constantly changing to satisfy the changing needs of the times and the sociocultural advancement of the community. Changes in educational content, delivery methods, and the roles of educators have resulted from this transformation, which has occurred very quickly in recent years. Within this framework, the concept of pedagogical design is becoming increasingly important in shaping educational environments, highlighting the need to move away from traditional methods towards new, higher-quality paradigms. Pedagogical design is becoming increasingly recognized in contemporary higher education

as a substantive and methodological foundation for organizing teaching and learning processes. It involves methodically applying assessment criteria, planning learning activities in phases, and regulating interactions between students and teachers.

Pedagogical design principles are rooted in scientific and theoretical approaches aimed at enhancing teaching quality. Notably, the models of constructive alignment by Biggs (1996) and backward design by Wiggins and McTighe (2005) are considered fundamental to pedagogical planning. According to these scholars, pedagogical design is a methodology focused on improving students' learning

experiences through systematic planning of teaching strategies, learning activities, and assessment methods (Biggs, 1996; Wiggins & McTighe, 2005). Its primary objective is to create an effective learning environment by aligning the learning objectives, content, teaching methods, and assessment approaches (Reigeluth, 1999; Biggs, 1996). This study aimed to analyze university instructors' understanding of pedagogical design, their level of professional training in this area, and their experience in designing course syllabi. The goal was to explore how pedagogical design is understood theoretically and applied to curriculum development. In international scholarly literature, research on pedagogical design is extensive. In Western education systems in particular, it is regarded as a key category linking teaching theory and practice. Studies have indicated that many university instructors, despite being subject experts, often lack formal pedagogical training in course design. Consequently, they tend to rely on the intuition, experience, or templates provided by their institutions when structuring their courses (Darling-Hammond, 2017; Timmermans & Meyer, 2019). This raises concerns regarding the alignment between course content and learning outcomes, potentially affecting the effectiveness of the learning process. In Russia, pedagogical design gained scholarly attention in the early 2000s. Researchers, such as Tokareva (2008), Makarenko (2017), and Demidova (2019), have developed theoretical perspectives on the role of pedagogical design in improving educational quality. However, in the Kazakhstani academic context, pedagogical design remains an under-researched area that requires a systematic study. In recent years, this topic has received increasing attention from researchers such as I. B. Shmigirillova, D. K. Darbayeva, N. A. Rybalko (2022), G. B. S. Bobesh, G. Zh. Smagulova (2023) and M. Serik (2024) examined the content of pedagogical design, as well as the role and influence of information technologies in this field.

In recent years, the Republic of Kazakhstan has implemented several national-level policy documents aimed at enhancing its education

system, with a particular focus on integrating modern pedagogical technologies. Specifically, the State Programme for the Development of Education and Science of the Republic of Kazakhstan for 2020–2025, sanctioned by the government, identifies the adoption of best international practices and introduction of innovative teaching methods as pivotal mechanisms for improving education quality. These priorities underscore the importance of advancing pedagogical design in the higher education sector.

However, studies show a discrepancy between the theoretical foundations of pedagogical design and how it is used in college instruction. Many university professors lack specialized professional training in this area. This claim is supported by the preliminary survey results of this study, which show that about 90% of participants said they had never taken any formal pedagogical design courses or professional development programs (descriptive analysis and specific quantitative data are provided).

The primary objective of this study was to determine the perceptions and cognitive insights of university instructors regarding the concept of instructional design, as well as the extent to which these perceptions manifest themselves in the development of programs (syllabi). In addition, the core objective of this research is to evaluate the level of professional preparedness and content of competencies in this field. To achieve this overarching objective, the following scientific and practical tasks have been defined: analyzing the historical and theoretical evolution of the concept of instruction design; comparing globally established theoretical models with national practices; examining the practical state, scope, and existing challenges of instruction design in Kazakhstan universities through an online survey and semi-structured interviews with university instructors; and scientifically analyzing the collected data and proposing practical recommendation-based mechanisms for the systematic and effective implementation of educational design in higher education institutions.

The study also presents *the main research questions*: To what extent do university instructors

fully and accurately understand the principles of educational design? What parts of them have vocational training or specialized courses in this field? Do course programs (syllabi) develop in line with current instruction standards? What are the main disadvantages of the syllabus structure? By addressing these questions, this study aims to investigate the extent to which educational design is theoretically understood within the current landscape of higher education in Kazakhstan, and how deeply it is integrated into educational content.

The relevance of research results from the need to systematically structure the educational process and improve it through scientifically based design methods. Currently, many university instructors tend to rely on traditional approaches to program development, while modern principles such as constructive alignment and design remain insufficiently widespread (Member, Kwan, 2000; Parkes, Harris, 2002). These gaps can undoubtedly have a negative impact on student learning outcomes (Darling-Hammond, 2017). It is therefore anticipated that theoretical and practical recommendations developed on the basis of this research will help improve the design of courses in universities, improve the methodological skills of instructors, and ultimately increase the quality of education to a new level.

Scientific Novelty: This study represents extensive empirical research in Kazakhstan, which includes surveys, interviews, and syllabus analysis, to investigate the application of educational design by university instructors in the development of natural content. The data collected will provide new and significant insights into the current state of education design within the national higher education sector.

Materials and Methods. This study employed a mixed-methods research design integrating both quantitative and qualitative approaches. The methodological framework was grounded in international models of instructional planning, particularly the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation), which provided guidance for structuring the research. The combination of theoretical analysis and empirical investigation ensured

a comprehensive and accurate examination of instructional design practices in higher education.

The sample included 20 university instructors representing the humanities, natural sciences, and technical disciplines from different regions of Kazakhstan. Teaching experience ranged from 3 to 25 years, with an average of 10 years. Participants were selected through convenience sampling and voluntary participation. Before data collection, all participants were informed about the study's objectives, assured of confidentiality, and notified that no personal information would appear in the final research output.

Four complementary methods were employed to collect data:

1. **Online Survey.** A 20-item questionnaire (Google Forms) examined instructors' use of digital tools, formulation of learning outcomes and evaluation criteria, implementation of interactive teaching methods, prior training in educational design, and open-ended suggestions for improvement.

2. **Semi-structured Interviews.** Ten instructors from various disciplines participated in in-depth interviews lasting approximately 30 minutes. Interviews explored experiences with instructional design, methodological approaches to syllabus development, and encountered challenges. All interviews were audio-recorded and transcribed verbatim for analysis.

3. **Focus Group Discussions.** Three focus groups were conducted, each consisting of 5–6 instructors. The discussions addressed strategies for curriculum renewal, institutional support mechanisms, integration of digital technologies, and challenges in instructional planning. These sessions also served to validate and extend survey and interview findings.

4. **Syllabus Content Analysis.** Twenty syllabi from different departments of the K. Sagadiev International University of Business were analyzed. Criteria included clarity and measurability of learning outcomes, diversity of assessment methods, student-centered teaching strategies, integration of digital resources, incorporation of project-based learning, and overall structural coherence.

The research process began with a review of domestic and international literature on

instructional design to establish the theoretical foundation. This was followed by systematic empirical data collection using the four tools above. All surveys were conducted anonymously, ensuring freedom of expression and authenticity of responses.

Quantitative survey data were processed using descriptive statistics (frequencies, percentages, and means) in SPSS. Qualitative data from interviews and focus groups were subjected to inductive thematic analysis, with recurring ideas grouped into clusters such as *methodological support*, *infrastructural provision*, and *incentive mechanisms*. Representative quotations were included to illustrate findings. Syllabi were analyzed through both frequency counts and qualitative evaluation based on instructional design criteria.

To ensure validity and reliability, triangulation was applied by cross-checking survey, interview, and syllabus data. Additionally, two independent

researchers conducted coding of qualitative data, reaching an intercoder agreement of over 90%, which strengthened the consistency of interpretation.

Results. From a theoretical and practical standpoint, it is important to examine the extent to which the commonly discussed pedagogical design principles of modern education can be applied in real classroom environments. With an emphasis on its structural and content-related aspects, this study attempts to provide a thorough account of how university instructors implement pedagogical design. When incorporating pedagogical design principles into the learning process, university instructors frequently lack consistency and systematic approaches according to the data gathered for this study. According to the results of the surveys and interviews, new teaching strategies and resources are regularly used, either formally or informally (Figure 1).

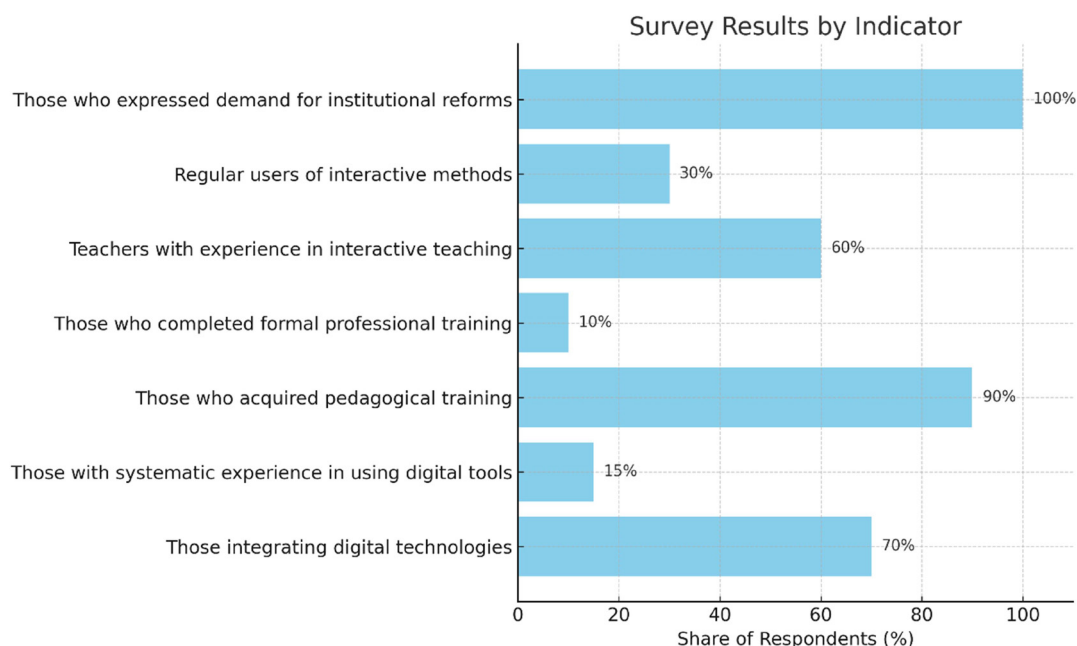


Figure 1: Scientific and Practical Indicators Related to Pedagogical Design Practices According

Scientific and Practical Indicators Related to Pedagogical Design Practices According to the survey, when asked, ‘Do you use modern educational technologies (digital platforms, online tools) in your lessons?’ 70 % of respondents affirmed their use. Only 15% of the respondents said that they use these technologies

as a systematic and essential component of their lessons. Others said that they occasionally used them when necessary. According to these data, the full potential of digital tools is still unrealized, which could have a negative pedagogical impact on educational efficacy. Instructors’ lack of specialized training in

pedagogical design is another urgent problem. Regarding “Have you received formal training in pedagogical design and modern teaching methods?” Eighteen respondents (90%) said they had never taken a formal course. Only two teachers participated in university-sponsored seminars and workshops.

This finding suggests a lack of institutional support, which has been identified as a major obstacle to the successful design of academic programs, in addition to a lack of professional development opportunities. A number of significant problems were identified by the study, which also examined the application of interactive teaching techniques. Approximately 60% of those surveyed stated that they incorporated case studies, group projects, discussions, and project-based learning into their lessons. Only roughly half of them, though, said they regularly used these techniques each week. According to others, they employ only interactive methods for particular subjects or on an inconsistent basis over the semester. Some teachers who participated in the interviews mentioned time constraints, large class sizes, and a lack of methodological training as reasons why they could not use these techniques.

One respondent noted, «I’d like to engage students through gamification, but it’s hard to fit it into the lesson schedule». This demonstrates that, although educators are aware of these techniques, they frequently lack the tools and expertise necessary to fully apply them. Instructors expressed a strong need for institutional support according to open-ended survey questions and interview findings about syllabus development. Every respondent offered recommendations in response to the question, «What institutional changes are needed to improve the course development process?». Approximately 30 recommendations were examined and divided into four primary categories.

The need for clear guidelines, model documents, and frequent workshops devoted to syllabus development was often emphasized by instructors. Most recommendations point to the need for organized training courses that prioritize real-world implementation of pedagogical design concepts. Infrastructure:

The importance of having material resources to support the adoption of new technologies is emphasized. Among the recommendations were the supply of interactive equipment (such as boards and projectors) and the guarantee of fast internet access. *Incentive Mechanisms:* The respondents suggested offering instructors who use creative rewards or salary bonuses in addition to material and moral support. *Time and Workload:* To devote more time and effort to creating high-quality curricula, some educators argued for lighter workloads and fewer administrative duties.

These arguments imply that instructors must allocate time and energy in a balanced manner to engage with pedagogical design. Overall, the study found that although teachers are somewhat familiar with the concepts of pedagogical design, they lack the necessary skills to implement them consistently and methodically. Furthermore, professional development techniques and organized methodological support are required for higher education. We turn to the findings of a content analysis of course syllabi from the standpoint of pedagogical design to further clarify these conclusions. Syllabi Content Analysis (from the Point of View of Pedagogical Design): Twenty curricula were examined using the following criteria:

The objective was to assess the extent to which these course documents aligned with the principles of modern pedagogical design. *Learning Outcomes:* This study examined how curricula were developed. Theoretically, action-oriented quantifiable verbs that are in line with Bloom’s taxonomy should be used to construct learning objectives. Eleven curricula used quantifiable and unambiguous verbs, such as “analyze,” “apply,” and “design,” according to the analysis. Nine curricula, however, only used ambiguous verbs like “know” or “understand,” leaving out any indication of what the students were expected to learn. As a result, many course objectives were not clearly stated, which may have a detrimental effect on the caliber of the assessments and feedback. *Assessment System:* There was little variation in the assessment techniques used, even though all curricula included elements,

such as midterms and final exams. Thirteen curricula used only conventional evaluation methods, such as ratings, midterms, and final exams. Project work, portfolios, presentations, essays, and self-directed tasks are examples of alternative assessments that were included in only seven. These were used unevenly, although (some curricula only included a presentation, while others only included one project), and the evaluation standards were frequently vague. The limitations of the assessment system limit the ability to assess a wide range of student competencies. *Digital Technology Use*: The incorporation of information and communication technologies (ICT) into the curricula was also analyzed. Specific digital platforms or tools utilized in the course were specifically mentioned in eight syllabi (e.g., “The course is delivered via Moodle”, or “Kahoot is used for online testing”). The information in the remaining 12 curricula was unclear; some made reference to the general “use of electronic resources,” while many made no mention of digital tools. This implies that most courses do not integrate ICT systematically.

Discussion. The present study set out to diagnose the state of instructional design in Kazakhstan’s universities by triangulating survey data, semi-structured interviews, focus group discussions and syllabus analysis. Our findings revealed that many course syllabi lacked clearly formulated learning outcomes, rarely incorporated digital resources or project-based learning, and relied on narrow assessment formats. Survey and interview data showed that instructors used digital tools sporadically and received little training in instructional design. Participants emphasised the need for methodological support, institutional infrastructure and incentive mechanisms, underscoring that current instructional design practices are not aligned with contemporary pedagogical frameworks. These results have important implications for the modernisation of higher education in Kazakhstan and resonate with international research on digital transformation and instructional design.

Our findings are consistent with studies documenting both the potential and the

challenges of digital transformation in higher education. For example, Petchamé, Iriondo, Korres, and Paños-Castro (2023) evaluated a hybrid virtual teaching format based on a smart-classroom system and found that broadcasting lectures via videoconference created a resilient format that allowed teaching to continue during emergencies and gave students flexibility in choosing on-campus or remote attendance. However, they emphasised that when face-to-face and online modalities run concurrently, instructors must carefully design activities to minimise issues such as technical problems, distractions and a lack of belonging. Participants in the present study raised similar concerns: despite recognising the potential of digital tools, they reported limited competence in designing hybrid or online courses and noted that existing curricular structures do not support interactive learning. Both studies therefore highlight the need for systematic professional development to help instructors integrate digital technologies effectively.

Recent literature also stresses that digital learning offers advantages—such as expanded access and flexible pacing—but introduces significant pedagogical challenges. A 2025 review in *Frontiers in Education* (Zou, 2025) notes that while digital platforms can enrich learning through multimedia, gamification and real-time assessment, effective integration requires rethinking instructional strategies and providing extensive teacher training. The same review points out that simply digitising existing content is insufficient; educators must adopt new approaches to engage students in virtual settings and ensure inclusivity. These observations mirror our participants’ complaints that digital tools are adopted superficially and without pedagogical coherence. The lack of clearly measurable learning outcomes in analysed syllabi further suggests that constructive alignment—the alignment of objectives, activities and assessments—remains underdeveloped. Like our respondents, the review also highlights the digital divide and data-privacy concerns, which are particularly relevant to Kazakhstan given disparities in internet access between urban and rural regions.

Teachers' perceptions of online and blended learning are ambivalent. A large international survey of 636 higher-education instructors conducted during the COVID-19 pandemic (Lucas & Vicente, 2022) found that online teaching provided benefits such as flexibility, accessibility, pedagogical innovation and opportunities for student self-regulation. Yet the same study identified engagement, interaction, technical support, assessment and pedagogical practice as major challenges. Our focus-group participants echoed these sentiments: they valued the flexibility of digital tools for accommodating diverse student needs, but lamented the difficulty of maintaining student engagement and pointed to insufficient institutional support. Interestingly, while instructors in the international survey viewed online teaching as a "double-edged sword" with elements perceived as both beneficial and challenging, our participants tended to emphasise the negative aspects, perhaps reflecting the greater scarcity of infrastructure and training in Kazakhstan. This difference underscores the importance of context when interpreting perceptions of digital learning.

Another strand of research focuses on faculty readiness for online teaching. Zgheib, Al Daia, and Serhan (2023) surveyed 210 university instructors in Lebanon and identified five factors associated with online-teaching readiness: technology access and skills, course design, online pedagogy, attitude and institutional support. Their study found that although instructors possessed basic technology skills, they faced contextual challenges and required stronger institutional support. Readiness varied by gender, teaching experience and discipline, with arts-based instructors feeling less prepared to teach online. Our findings are congruent with these results: Kazakh instructors reported that their institutions offered limited professional development, lacked clear guidelines for course design and provided little recognition for pedagogical innovation. The syllabus analysis showed that course design elements such as measurable outcomes and diversified assessments were often missing. Whereas Zgheib et al. documented differences across disciplines

and demographics, our small sample did not allow for such comparisons. Nonetheless, both studies emphasise that online-teaching readiness depends not only on individual competence but also on structural factors such as institutional culture and resource availability.

The present study adds to the literature in several ways. First, it is one of the few investigations of instructional design practices in Kazakhstan and thus provides a regional perspective often missing from global analyses. By combining survey, interview, focus-group and syllabus data, the research offers a comprehensive picture of instructors' experiences and the structural barriers they face. Second, the integration of syllabus content analysis reveals concrete misalignments between stated learning outcomes, teaching methods and assessment strategies, illuminating a gap that may not be apparent from self-reported data alone. Third, the study highlights the interplay between digital transformation and institutional policies: instructors expressed a strong desire to adopt innovative methods but lacked incentives and support mechanisms to do so. These findings underscore the need for national guidelines on instructional design and digital pedagogy, professional-development programmes tailored to local needs, and investment in infrastructure.

Like all studies, this research has limitations. The sample size of 20 instructors limits generalisability and prevents robust statistical analysis of subgroup differences. In addition, the focus on a single country means that caution is required when extrapolating findings to other contexts. Nevertheless, the parallels between our results and those of studies from other regions suggest that many challenges are universal, while the differences highlight the importance of contextual factors such as institutional culture, resources and national policies. Future studies could employ larger samples and comparative designs to examine how instructional design practices vary across disciplines and institutions in Central Asia. Longitudinal research could also track the impact of reforms and professional-development initiatives on pedagogical outcomes.

Conclusion. According to the study's findings, a sizable percentage of teachers lack formal

pedagogical training, frequently use instinctive methods to create curricula, and are untrained in modern pedagogical models. According to content analysis of curricula, assessment methods are primarily limited to conventional exams, and learning objectives are frequently stated in a formalistic way. In addition, the learning process has not consistently integrated interactive teaching techniques and alternative assessment methods. These results highlight the need for a thorough evaluation of curricula, in terms of both methodology and content. Improvement of facilities in schools. They also emphasize the necessity of providing instructors with institutional support, specifically in the form of pedagogical design, professional development programs, methodological resource access, encouragement of creative practices, digital tool usage guidelines, and improved educational infrastructure. The findings highlight the importance of creating a learning environment

that focuses on the needs of students. Developing action-oriented learning outcomes, providing opportunities for student choice, and creating course content using flexible approaches that consider learner autonomy are important steps in this direction. This study offers a thorough analysis of pedagogical design in the context of higher education in Kazakhstan, highlighting its advantages and disadvantages. Its scientific value lies in providing a set of specific suggestions based on actual instructional strategy data. The recommendations' direct application in raising the standard of university education accounts for its practical significance. These results indicate that the improvement of faculty members' methodological culture, systematic integration of contemporary teaching techniques and technologies, and growth of instructors' professional competencies in pedagogical design are essential prerequisites for raising the standard of higher education.

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