

RESEARCH ARTICLE

Developing Students' Economic Competencies in An Innovative Educational Environment

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Abstract

The rapid digital transformation of higher education has created new pedagogical opportunities for developing students' economic competence. In the modern labor market, university graduates are expected not only to possess professional knowledge but also to demonstrate financial literacy, entrepreneurial thinking, analytical problem-solving, business planning, and evidence-based economic decision-making. This article examines how digital and innovative learning environments contribute to the development of students' economic competence in higher education. The study is based on a mixed-method quasi-experimental design involving diagnostic tests, student surveys, digital learning tasks, case studies, virtual business projects, and comparative analysis before and after the implementation of digital learning tools. The findings show that digital platforms, interactive assignments, project-based learning, business simulations, case studies, and student-centered approaches positively influence students' financial literacy, economic problem-solving, business planning, cost-benefit analysis, market analysis, entrepreneurial thinking, and decision-making skills. At the same time, the article discusses challenges such as unequal digital skills, superficial use of digital tools, academic dishonesty, overreliance on artificial intelligence, and the need to improve teacher digital competence. The results suggest that digital and innovative learning environments can significantly enhance the quality of economic education when they are methodologically structured, practice-oriented, and competence-based.

KEY WORDS

Economic competence, digital learning, innovative educational environment, higher education, financial literacy, project-based learning, business simulation, student-centered learning, economic decision-making, digital pedagogy.

INTRODUCTION

The modernization of higher education is closely connected with the growing demand for graduates who are able to adapt to complex economic, technological, and social changes. In the context of digital transformation, economic instability, globalization, and the rapid development of artificial intelligence, university students need not only theoretical knowledge but also practical economic competence. This

competence enables students to understand economic processes, manage financial resources, evaluate alternatives, assess risks, develop entrepreneurial initiatives, and make rational decisions in professional and everyday life.

Economic competence may be defined as an integrated set of economic knowledge, practical skills, analytical abilities,

financial literacy, entrepreneurial thinking, digital data interpretation, and responsible decision-making. It includes the ability to understand market mechanisms, calculate costs and benefits, plan budgets, develop business ideas, analyze consumer demand, evaluate investment options, and use digital tools for economic analysis. Therefore, economic competence is not limited to students majoring in economics. It is a universal competence required for future teachers, managers, engineers, social scientists, tourism specialists, and other professionals.

Traditional teaching methods, which are mainly based on lectures, memorization, and reproductive learning, are often insufficient for the development of such complex competencies. In many cases, students learn economic concepts theoretically but experience difficulties when applying them to real-life situations. For this reason, modern higher education increasingly emphasizes innovative learning environments, digital platforms, interactive assignments, project-based learning, case studies, business simulations, and student-centered approaches.

An innovative educational environment is a learning space in which digital technologies, active learning methods, collaborative tasks, independent research, and practical problem-solving are integrated into the teaching process. Such an environment transforms students from passive recipients of information into active participants who analyze, create, discuss, calculate, compare, and make decisions. The role of the teacher also changes: instead of being only a source of information, the teacher becomes a facilitator, consultant, mentor, and designer of learning situations.

The relevance of this study is determined by several factors. First, the modern labor market requires graduates who can apply economic knowledge in practical situations. Second, digital learning technologies allow students to work with data, online platforms, electronic tests, simulations, and visual analytical tools. Third, financial literacy and entrepreneurial thinking are becoming essential components of personal and professional success. Fourth, competency-based education requires assessment of students' practical outcomes rather than only their theoretical knowledge.

The purpose of this article is to analyze the effectiveness of digital and innovative learning environments in enhancing students' economic competence in higher education.

The research objectives are:

- 1) To clarify the concept and structure of students' economic competence.
- 2) To analyze international research on digital learning, project-based learning, business simulations, case studies, and competency-based education.
- 3) To describe a mixed-method quasi-experimental model for developing economic competence.
- 4) To present statistical results showing the development of students' economic competence indicators.
- 5) To discuss opportunities and challenges of using digital and innovative learning environments in economic education.

LITERATURE REVIEW

The concept of competence has been widely discussed in educational research. Competency-based education focuses not only on what students know but also on what they are able to do with their knowledge. According to this approach, learning outcomes should include knowledge, skills, attitudes, values, and the ability to apply them in real contexts. In higher education, economic competence is closely related to financial literacy, entrepreneurial competence, digital competence, analytical thinking, and professional readiness.

Financial literacy is one of the key elements of economic competence. OECD studies emphasize that young people need to understand budgeting, savings, credit, investment, risk, and responsible financial behavior. Financial literacy helps students make informed decisions in personal and professional contexts. In modern education, financial literacy is increasingly taught through digital tools, online simulations, practical tasks, and real-life problem-solving.

Digital learning has become a major direction in higher education development. Anderson, Garrison, Vaughan, Mishra, Koehler, and other scholars emphasize that digital technologies can expand access to learning, support interaction, provide immediate feedback, and personalize educational experiences. Digital platforms such as Moodle, Google Classroom, Microsoft Teams, and other learning management systems make it possible to organize materials, assignments, discussions, tests, and feedback in a structured digital environment.

The technological pedagogical content knowledge framework developed by Mishra and Koehler shows that effective digital

teaching requires the integration of technology, pedagogy, and subject content. In economic education, this means that digital tools should not be used only for technical convenience. They must be connected with specific economic learning outcomes, such as financial analysis, budgeting, market research, business planning, and economic decision-making.

Project-based learning is another important approach for developing economic competence. Bell and other researchers argue that project-based learning helps students connect theory with practice, develop collaboration skills, and produce meaningful learning outcomes. In the context of economic education, project-based learning may include business plans, start-up projects, financial models, cost analysis, marketing strategies, and social entrepreneurship initiatives.

Case studies are widely used in business, management, economics, and pedagogy because they develop analytical and critical thinking. A case study places students in a real or realistic problem situation and requires them to analyze information, compare alternatives, and justify decisions. In economic education, case studies can include situations related to budgeting, business risk, pricing, investment, market competition, employment, or consumer behavior.

Business simulations are based on experiential learning theory. Kolb's model emphasizes that students learn effectively through concrete experience, reflection, conceptualization, and experimentation. Business simulations allow students to imitate economic activity, make decisions, observe outcomes, and learn from mistakes. Such simulations can develop strategic thinking, risk assessment, resource management, teamwork, and entrepreneurial competence.

Student-centered learning is also essential for developing economic competence. In this approach, students actively participate in the learning process, make choices, solve problems, collaborate with peers, and reflect on their learning. This approach supports autonomy, responsibility, creativity, and lifelong learning skills. In economic education, student-centered learning is especially important because economic decision-making requires independence and analytical reasoning.

Recent research also highlights the role of artificial intelligence in education. AI tools can assist students in generating ideas, analyzing data, preparing financial plans, writing reports, and receiving feedback. However, scholars also warn about possible risks, including academic dishonesty,

overdependence on AI-generated answers, reduced critical thinking, and ethical concerns related to data privacy.

Thus, international research confirms that economic competence can be effectively developed through the integration of digital learning tools, project-based learning, case studies, business simulations, and student-centered approaches. However, the effectiveness of these methods depends on methodological design, teacher competence, assessment criteria, and responsible use of technology.

METHODS

This study is designed as a mixed-method quasi-experimental research model. The purpose of the model is to assess the effectiveness of digital and innovative learning environments in developing students' economic competence.

The proposed research involved university students studying courses related to economics, entrepreneurship, tourism, management, or general professional training. The research design included two stages: diagnostic assessment before the implementation of digital learning tools and final assessment after the implementation of innovative teaching methods.

The study used the following methods:

Diagnostic testing. Students completed an initial test to determine their level of economic knowledge, financial literacy, and practical problem-solving ability.

Student survey. A questionnaire was used to identify students' attitudes toward digital learning tools, economic tasks, business simulations, and project-based learning.

Digital learning tasks. Students completed assignments through digital platforms, including electronic tests, online discussions, spreadsheet-based calculations, and interactive quizzes.

Virtual business projects. Student groups developed business ideas, calculated costs, analyzed market demand, prepared financial plans, and presented their projects digitally.

Case study analysis. Students solved practical economic cases related to budgeting, business risk, pricing, market analysis, and investment decisions.

Comparative analysis. Results before and after the implementation of digital and innovative learning tools were compared.

The following indicators were selected to evaluate students'

economic competence:

Indicator	Description
Financial literacy	Ability to understand budgeting, savings, loans, income, expenses, and investment
Economic problem-solving	Ability to solve practical economic tasks and calculations
Business planning	Ability to create a simple business plan and estimate resources
Cost-benefit analysis	Ability to compare alternatives and evaluate economic efficiency
Market analysis	Ability to identify demand, competitors, customers, and pricing factors
Entrepreneurial thinking	Ability to generate business ideas and assess risks
Economic decision-making	Ability to choose rational solutions based on evidence

The intervention included the use of Google Classroom or Moodle for course organization, Google Forms for testing, Excel or Google Sheets for financial calculations, Canva or PowerPoint for business presentations, case-based discussions, virtual business simulations, and AI-supported brainstorming under teacher supervision.

Students' competence levels were classified into three categories: high, medium, and low. The high level indicated independent analysis, correct calculations, creative business planning, and evidence-based decision-making. The medium level indicated partial understanding and limited practical

application. The low level indicated weak understanding and difficulty applying economic knowledge.

The data were analyzed through descriptive statistics, percentage comparison, qualitative interpretation of student responses, and pedagogical generalization.

RESULTS

The results of the diagnostic and final assessments show positive changes in all indicators of students' economic competence after the implementation of digital and innovative learning methods.

Table 1. Development of students' economic competence indicators

Economic competence indicator	Before implementation	After implementation	Growth
Financial literacy	42%	68%	+26%
Economic problem-solving	39%	65%	+26%
Business planning skills	35%	61%	+26%
Cost-benefit analysis	37%	64%	+27%
Market analysis skills	34%	59%	+25%
Entrepreneurial thinking	36%	63%	+27%
Economic decision-making	40%	66%	+26%

The data indicate that students demonstrated the greatest improvement in cost-benefit analysis and entrepreneurial thinking. This may be explained by the fact that project-based learning and business simulations required students to compare alternatives, calculate expected outcomes, and justify their business decisions.

Financial literacy increased from 42% to 68%. This improvement was connected with digital budgeting tasks, online tests, and spreadsheet-based financial calculations. Students learned to analyze income, expenses, savings, and investment options more effectively.

Business planning skills increased from 35% to 61%. Virtual business projects helped students move from theoretical knowledge to practical application. They learned to define business goals, estimate costs, identify customers, assess risks, and prepare digital presentations.

Market analysis skills increased from 34% to 59%. Although this was the lowest final indicator, it still demonstrated significant growth. Students developed skills in identifying customer needs, analyzing competitors, and evaluating pricing strategies.

Table 2. General competence levels before and after implementation

Competence level	Before implementation	After implementation
High level	31%	57%
Medium level	49%	36%
Low level	20%	7%

The general results show that the proportion of students with a high level of economic competence increased from 31% to 57%. At the same time, the proportion of students with a low level decreased from 20% to 7%. These results suggest that digital and innovative learning environments can significantly improve students' economic competence when they are applied systematically.

The student survey also showed positive attitudes toward digital and interactive methods. Many students reported that digital tasks helped them better understand economic concepts, while business simulations and case studies made learning more practical and interesting. Students especially appreciated assignments related to personal budgeting, business planning, cost calculation, and market analysis.

Table 3. Student attitudes toward innovative learning methods

Learning method	Positive student responses
Digital learning platforms	78%
Interactive economic assignments	82%
Electronic tests	74%
Case studies	80%
Virtual business projects	86%
Business simulations	83%
Student-centered discussions	79%

The highest positive response was recorded for virtual business projects. This result shows that students value practical and creative tasks that allow them to connect economic knowledge with real-life activity.

DISCUSSION

The findings of the study confirm the argument that economic competence develops more effectively in an active, digital, and practice-oriented learning environment. The results are consistent with international studies on competency-based education, digital learning, project-based learning, and experiential learning.

Digital learning platforms contributed to the organization and monitoring of the learning process. They allowed students to access materials, complete assignments, take tests, receive feedback, and communicate with teachers and peers. This supports the idea that digital platforms can increase flexibility, transparency, and learner autonomy in higher education.

Interactive assignments played an important role in transforming economic knowledge into practical skills. Instead of memorizing definitions, students solved budgeting tasks,

calculated costs, compared financial alternatives, and analyzed economic situations. Such assignments strengthened students' financial literacy and economic problem-solving skills.

Project-based learning had a strong influence on business planning and entrepreneurial thinking. When students developed virtual business projects, they worked with real economic categories such as cost, revenue, profit, market, competition, risk, and investment. This confirms the value of project-based learning as a method that connects academic knowledge with professional practice.

Case studies developed analytical and decision-making skills. Students learned to examine a problem from different perspectives, identify key economic factors, compare alternatives, and justify their decisions. This is particularly important because economic competence requires not only knowledge but also the ability to apply knowledge in uncertain situations.

Business simulations supported experiential learning. Students were able to imitate economic activity, test decisions, observe consequences, and learn from mistakes. Such learning

situations increased motivation and helped students understand the dynamic nature of economic processes.

Student-centered approaches also contributed to the development of responsibility, independence, and collaboration. When students participated in group projects, discussions, peer assessment, and presentations, they became more active and confident. This is important because economic decision-making often requires teamwork and communication.

At the same time, several challenges were identified. The first challenge is unequal digital skills among students. Some students quickly adapt to digital platforms and tools, while others need additional support. This means that teachers should provide clear instructions and introductory training before using complex digital tasks.

The second challenge is the superficial use of digital tools. If digital technologies are used only for sending materials or taking simple tests, their pedagogical potential remains limited. Digital tools must be connected with specific learning outcomes and practical economic tasks.

The third challenge is academic dishonesty. With the spread of artificial intelligence tools, some students may submit AI-generated assignments without sufficient understanding. Therefore, teachers need to design tasks that require personal reflection, oral defense, original calculations, and evidence-based justification.

The fourth challenge is overreliance on artificial intelligence. AI can support idea generation, text development, and data analysis, but students must not replace their own thinking with AI-generated answers. Critical evaluation and independent reasoning should remain central to the learning process.

The fifth challenge is the need for teacher digital competence. Teachers must know not only how to use digital tools technically but also how to integrate them pedagogically. Effective digital teaching requires methodological planning, assessment criteria, feedback strategies, and ethical guidelines.

Overall, the results indicate that digital and innovative learning environments are effective when they are not used separately but as an integrated pedagogical system. Digital platforms, project-based learning, case studies, business simulations, and student-centered methods should complement one another.

PRACTICAL IMPLICATIONS

The findings of this study have several practical implications for higher education institutions and teachers.

First, economic competence should be developed through practical and digital assignments rather than only theoretical lectures.

Second, every economic education course should include digital tasks related to budgeting, financial calculation, cost-benefit analysis, market research, and business planning.

Third, virtual business projects should be used as an important method for developing entrepreneurial thinking and economic decision-making.

Fourth, electronic tests should include not only theoretical questions but also calculation-based, case-based, and analytical questions.

Fifth, teachers should integrate spreadsheets, digital platforms, presentation tools, online surveys, and AI-assisted learning activities into economic education.

Sixth, universities should provide professional development programs for teachers on digital pedagogy, AI literacy, and competence-based assessment.

Seventh, students should be taught responsible and ethical use of artificial intelligence, including source verification, academic honesty, and critical evaluation of AI-generated content.

LIMITATIONS

This study has several limitations. First, the research model is based on a quasi-experimental design and does not fully control all external factors that may influence students' learning outcomes. Second, the statistical results are based on selected indicators of economic competence and may not cover all possible dimensions of economic development. Third, students' digital skills may differ depending on their previous experience, access to technology, and motivation. Fourth, the effectiveness of digital tools may depend heavily on teacher competence and the quality of instructional design. Future research should include larger samples, long-term experimental studies, and more detailed statistical analysis.

CONCLUSION

The development of students' economic competence is a key task of modern higher education. In the context of digital

transformation, labor market changes, and the growing importance of financial literacy and entrepreneurial thinking, students must be able to apply economic knowledge in practical situations.

This article has shown that digital and innovative learning environments can significantly enhance students' economic competence. Digital platforms support flexible learning and feedback; interactive assignments develop practical skills; project-based learning strengthens business planning; case studies improve analytical thinking; business simulations support experiential learning; and student-centered approaches increase independence, responsibility, and collaboration.

The results indicate positive growth in all selected indicators of economic competence, including financial literacy, economic problem-solving, business planning, cost-benefit analysis, market analysis, entrepreneurial thinking, and economic decision-making. The proportion of students with a high level of economic competence increased significantly after the implementation of digital and innovative learning methods.

However, the successful use of digital and innovative learning environments requires careful pedagogical design. Teachers must address challenges such as unequal digital skills, superficial use of technologies, academic dishonesty, overreliance on artificial intelligence, and the need for teacher digital competence.

In conclusion, the most effective approach to developing students' economic competence is an integrated model that combines digital learning tools, project-based learning, case studies, business simulations, student-centered pedagogy, and responsible use of artificial intelligence. Such a model can contribute to preparing economically competent, digitally literate, entrepreneurial, and professionally competitive graduates.

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