



THE ROLE OF ARTIFICIAL INTELLIGENCE TOOLS IN DEVELOPING ECONOMIC COMPETENCE AMONG UNIVERSITY STUDENTS

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Abstract. *The rapid integration of artificial intelligence into higher education has created new opportunities for developing students' economic competence. Economic competence is a complex ability that includes financial literacy, business planning, cost-benefit analysis, market evaluation, entrepreneurial thinking, and evidence-based economic decision-making. This paper examines the role of artificial intelligence tools in supporting the development of these competencies among university students. The study is based on theoretical analysis, comparative review, and pedagogical interpretation of AI-supported learning practices in economic education. The results show that AI tools can assist students in analyzing financial data, preparing business plans, comparing economic alternatives, conducting market research, modeling entrepreneurial projects, and improving decision-making skills. At the same time, the paper discusses possible risks, including academic dishonesty, overdependence on AI-generated answers, weakening of critical thinking, and ethical issues related to data use. The article concludes that AI tools should be used as supportive instruments within a student-centered and competence-based educational model.*

Keywords: artificial intelligence, economic competence, university students, financial literacy, business planning, cost-benefit analysis, market analysis, entrepreneurship education, economic decision-making, higher education.

Introduction. *In the context of digital transformation, higher education institutions are increasingly expected to prepare graduates who are able to think critically, make independent decisions, use digital technologies, and adapt to rapidly changing economic conditions. The modern labor market requires specialists who possess not only professional knowledge but also economic competence. This competence enables students to understand economic processes, evaluate financial*



situations, plan resources, assess risks, make rational decisions, and participate effectively in entrepreneurial and professional activities.

Economic competence is especially important for university students because it directly influences their personal, professional, and social development. A student with developed economic competence can manage personal finances, understand market mechanisms, evaluate business ideas, calculate costs and benefits, analyze consumer behavior, and make informed economic choices. Therefore, economic competence should not be considered a narrow subject-related skill only for economics students. It is a universal competence that should be developed among students of different academic fields.

Artificial intelligence has become one of the most influential technologies in modern education. AI-based tools can generate text, analyze data, summarize information, create models, support decision-making, personalize learning, and provide immediate feedback. In economic education, these tools may be used to explain economic concepts, generate business ideas, analyze financial indicators, prepare market research, create investment scenarios, and support business simulation activities. As a result, artificial intelligence can make the learning process more interactive, practical, individualized, and analytical.

However, the use of AI in education also creates important pedagogical and ethical challenges. Students may become dependent on ready-made AI-generated answers. Some may use AI tools dishonestly to complete assignments without real understanding. There is also a risk that excessive reliance on AI may reduce students' independent reasoning, creativity, and critical thinking. Therefore, the effective use of AI tools requires a balanced pedagogical approach.

The relevance of this research is determined by the need to identify how artificial intelligence tools can be used to develop students' economic competence in a responsible and effective way. The main purpose of this paper is to analyze the role of AI tools in developing financial literacy, business planning, cost-benefit analysis,



market analysis, entrepreneurship education, and economic decision-making among university students.

The objectives of the paper are:

- to define the concept and structure of economic competence;
- to analyze the pedagogical potential of AI tools in economic education;
- to examine how AI can support financial literacy and business planning;
- to evaluate the role of AI in cost-benefit analysis, market analysis, and entrepreneurship education;
- to discuss the risks of academic dishonesty, overdependence on AI, and reduced critical thinking;
- to propose recommendations for the effective use of AI tools in developing students' economic competence.

Methods. This paper is based on a qualitative theoretical research design. The main methods used in the study are scientific literature analysis, comparative analysis, pedagogical generalization, conceptual modeling, and analytical interpretation. The study examines the role of artificial intelligence tools in economic education from the perspective of competence-based learning, student-centered education, digital pedagogy, and constructivist learning theory.

The research focuses on the following key questions:

- How can AI tools support the development of students' economic competence?
- Which components of economic competence can be strengthened through AI-supported learning?
- What are the main pedagogical advantages of using AI in economic education?
- What risks and limitations should be considered when integrating AI tools into higher education?

The study also considers AI tools as pedagogical instruments that may support these components. Such tools include generative AI chatbots, intelligent tutoring

systems, automated feedback tools, spreadsheet-based AI functions, data analysis platforms, AI-supported presentation tools, and business simulation systems.

The research does not present the results of a large-scale empirical experiment. Instead, it offers a conceptual and analytical framework suitable for international scientific discussion in the field of education and pedagogy. The findings may serve as a basis for future experimental studies on AI-supported economic education.

Results and discussion. Economic competence is an integrated personal and professional quality that combines knowledge, skills, values, attitudes, and practical abilities related to economic activity. It includes the ability to understand economic concepts, analyze financial situations, make rational choices, manage resources, assess risks, and participate in economic decision-making.

In university education, economic competence is formed through both theoretical and practical learning. Theoretical learning helps students understand economic laws, categories, and principles. Practical learning allows them to apply this knowledge in real-life or simulated situations. For example, students may calculate a personal budget, compare investment options, analyze business risks, or design a small business project.

The structure of economic competence may be presented as follows:

Structural component	Description
Cognitive component	Knowledge of economic terms, concepts, processes, and principles
Practical component	Ability to solve economic problems and perform calculations
Analytical component	Ability to compare alternatives and interpret data
Digital component	Ability to use digital and AI tools for economic analysis
Entrepreneurial component	Ability to generate ideas, evaluate risks, and plan business activity



Reflective component	Ability to evaluate one’s own decisions and learning outcomes
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Artificial intelligence tools can support each of these components. They can explain economic terms, generate examples, help with calculations, provide data analysis, suggest business models, and encourage students to reflect on alternative solutions. However, AI should not replace students’ thinking. It should act as a learning assistant that supports independent analysis.

AI tools and financial literacy. Financial literacy is one of the most important elements of economic competence. It includes understanding personal finance, budgeting, income and expenses, savings, loans, interest rates, investment, taxes, and financial risks. Many university students face difficulties in managing personal finances and understanding financial decisions. AI tools can help address this problem by offering personalized explanations, examples, and simulations.

For example, students can use AI tools to create a monthly budget model. They may enter expected income, rent, food expenses, transport costs, educational expenses, and savings goals. The AI tool can help categorize expenses, identify unnecessary spending, calculate possible savings, and propose financial recommendations.

AI can also explain financial concepts in simple language. If students do not understand compound interest, inflation, credit repayment, or investment risk, AI tools can provide step-by-step explanations and examples. This is particularly useful for students who need additional support outside the classroom.

- ✓ AI-supported financial literacy tasks may include:
- ✓ preparing a personal budget;
- ✓ comparing loan repayment options;
- ✓ calculating savings growth;
- ✓ analyzing credit risks;
- ✓ evaluating investment alternatives;
- ✓ creating emergency fund plans;



✓ explaining inflation and purchasing power.

The use of AI tools in financial literacy education makes learning more practical and individualized. Students can work with their own financial scenarios rather than abstract examples. This increases motivation and helps them connect economic knowledge with real life.

AI tools in business planning. Business planning is another important area where AI tools can contribute to the development of economic competence. A business plan requires students to define a business idea, identify customers, analyze market demand, estimate costs, plan revenue, evaluate competitors, and assess possible risks. For many students, this process is difficult because it requires both creative and analytical thinking.

AI tools can support business planning in several ways. First, they can help students generate business ideas based on local needs, social problems, or market opportunities. Second, they can assist in structuring a business plan. Third, they can provide examples of cost structures, marketing strategies, and risk factors. Fourth, AI can help students improve the language, logic, and presentation of their business projects.

For example, a student team may decide to develop a project for an online tourism service, eco-friendly product store, or student café. AI tools can help them identify target customers, prepare a SWOT analysis, estimate initial costs, develop marketing ideas, and prepare a presentation. However, students must verify the information, adapt it to real conditions, and make final decisions independently.

The following table shows the role of AI in business planning:

Business planning stage	Possible AI support
Idea generation	Suggesting innovative business ideas
Market identification	Helping define target customers
Cost estimation	Structuring expense categories
Revenue planning	Suggesting income models



Risk analysis	Identifying possible business risks
Marketing strategy	Generating promotional ideas
Presentation	Improving structure and clarity
Reflection	Comparing different business alternatives

Thus, AI tools can make business planning more accessible and systematic for students. At the same time, teachers should require students to justify their decisions and show their own calculations.

AI-supported cost-benefit analysis. Cost-benefit analysis is a key economic skill that helps students compare alternatives and choose the most efficient solution. It is used in business, public administration, project management, and personal finance. Students must learn to identify costs, estimate benefits, compare options, and evaluate short-term and long-term effects.

AI tools can help students understand the logic of cost-benefit analysis by generating examples, explaining formulas, and assisting with data interpretation. For instance, students may compare two alternatives: opening a small offline store or launching an online store. AI can help list possible costs such as rent, equipment, website development, advertising, salaries, and logistics. It can also help identify benefits such as expected sales, customer reach, brand growth, and flexibility.

However, AI-generated results should be checked critically. Students must understand that AI may produce approximate or incomplete information. Therefore, teachers should encourage students to verify assumptions, use real data where possible, and explain the reasoning behind their conclusions.

A simple AI-supported cost-benefit analysis task may include:

- ✓ identifying alternatives;
- ✓ listing direct and indirect costs;
- ✓ estimating expected benefits;
- ✓ calculating profit or savings;



- ✓ comparing risks;
- ✓ choosing the most effective option;
- ✓ justifying the decision.

Through such activities, students develop analytical thinking and evidence-based decision-making. AI accelerates the process, but the intellectual responsibility remains with the student.

AI tools and market analysis. Market analysis is essential for entrepreneurship education and economic decision-making. It includes studying consumer needs, competitors, pricing strategies, market trends, distribution channels, and external factors. AI tools can help students collect, organize, and interpret information about markets.

For example, AI can assist students in developing survey questions for potential customers. It can also help summarize survey results, identify consumer preferences, and suggest possible market segments. Students can use AI tools to compare competitors, analyze product advantages, and develop pricing strategies.

AI may also support market analysis by helping students interpret open data, customer reviews, and online trends. For example, if students are developing a tourism-related business idea, AI can help identify possible customer groups, seasonal demand, and marketing channels. If the project is related to education services, AI can help analyze target learners, pricing models, and competitor platforms.

Nevertheless, market analysis requires real-world validation. AI can provide hypotheses, but students must test these hypotheses through surveys, interviews, observations, or statistical data. This distinction is important for maintaining scientific accuracy and practical relevance.



AI in entrepreneurship education. Entrepreneurship education aims to develop students' initiative, creativity, responsibility, risk awareness, and ability to transform ideas into practical projects. AI tools can significantly enrich entrepreneurship education by supporting idea generation, project design, business modeling, and reflection.

In traditional entrepreneurship education, students may face difficulties in moving from abstract ideas to structured business projects. AI tools can guide them through this process. For example, AI can help students formulate a value proposition, identify customer problems, prepare a business model canvas, develop a marketing message, and create a project implementation plan.

These activities allow students to experience entrepreneurship as a practical process. They learn to think creatively, evaluate opportunities, and defend their ideas. AI tools can increase students' confidence because they provide immediate support and feedback.

However, entrepreneurship education should not become a process of copying AI-generated business plans. Students must be required to adapt, improve, and justify all AI-supported content. Teachers may ask students to explain why they selected a particular business idea, how they calculated costs, and what evidence supports their market analysis.

AI tools and economic decision-making. Economic decision-making is the ability to choose the most appropriate solution based on available information, expected outcomes, costs, benefits, risks, and ethical considerations. AI tools can support decision-making by providing structured comparisons, scenario analysis, and alternative solutions.

For example, students may be asked to choose between three investment options. AI can help compare expected return, risk level, time horizon, and liquidity. Students may also use AI to evaluate whether a company should increase production, reduce costs, change pricing, or enter a new market.



Despite these advantages, students should not accept AI suggestions automatically. Economic decision-making requires human judgment, ethical reasoning, and contextual understanding. AI can process information, but it does not fully understand social values, local realities, and long-term human consequences in the same way as a responsible decision-maker.

Therefore, the teacher's role is to design assignments in which AI is used as a support tool, while the final decision must be made and justified by the student.

Although AI tools provide many opportunities, their use in higher education creates several risks.

The first risk is academic dishonesty. Students may use AI to write assignments, prepare business plans, solve problems, or generate reports without real learning. This reduces the educational value of assignments and creates unfair assessment conditions.

The second risk is overdependence on AI. If students rely too much on AI-generated answers, they may lose motivation to think independently. They may stop checking facts, calculating manually, or developing their own arguments.

The third risk is reduced critical thinking. AI tools can produce confident but inaccurate or biased answers. If students do not critically evaluate these answers, they may accept incorrect information as true. In economic education, this is especially dangerous because wrong assumptions can lead to wrong financial or business decisions.

The fourth risk is superficial learning. Students may complete tasks quickly with AI assistance but fail to understand the underlying economic concepts. This means that the visible result may look strong, while real competence remains weak.

The fifth risk is ethical and data-related. Students may enter personal, financial, or confidential information into AI systems without understanding data privacy issues. This can create risks related to information security.

To reduce these risks, teachers should develop clear rules for AI use. Students should be informed when AI assistance is allowed, how it should be cited or acknowledged, and which parts of the work must be completed independently.



For AI tools to support the development of economic competence effectively, several pedagogical conditions are necessary.

First, AI use must be connected with clear learning outcomes. Teachers should define which competence is being developed: financial literacy, business planning, cost-benefit analysis, market analysis, entrepreneurship, or decision-making.

Second, AI-supported tasks should require student reflection. Students should explain how they used AI, what they changed, which suggestions they rejected, and why they made final decisions.

Third, assessment criteria should evaluate not only the final product but also the process. For example, in a business project, students should be assessed on idea quality, calculations, data justification, originality, teamwork, and presentation.

Fourth, teachers should combine AI tools with traditional academic skills. Students should still learn to read scientific literature, calculate financial indicators, analyze data, and write arguments independently.

Fifth, ethical AI literacy should be included in economic education. Students should understand academic honesty, data privacy, source verification, bias, and responsible technology use.

The following model summarizes the balanced use of AI in economic competence development:

AI-supported activity	Student responsibility	Teacher's role
Generating ideas	Selecting and adapting ideas	Guiding creativity
Explaining concepts	Understanding and applying concepts	Checking comprehension
Financial modeling	Verifying calculations	Providing assessment criteria
Market analysis	Collecting real evidence	Teaching research methods



Business planning	Justifying decisions	Supervising project development
Writing support	Editing and personalizing text	Ensuring academic integrity
Decision-making	Making final choice	Encouraging critical thinking

This model shows that AI should be integrated into the learning process as a tool for support, not as a replacement for student thinking.

Conclusion. Artificial intelligence tools have significant potential for developing economic competence among university students. They can support financial literacy, business planning, cost-benefit analysis, market analysis, entrepreneurship education, and economic decision-making. By using AI tools, students can receive personalized explanations, generate business ideas, structure financial plans, analyze alternatives, and improve their economic reasoning.

The study shows that AI tools are especially effective when they are used in an innovative, student-centered, and competence-based educational environment. They help connect theoretical economic knowledge with practical tasks and real-life situations. AI can make learning more interactive, flexible, analytical, and practice-oriented.

At the same time, the use of AI in higher education must be carefully managed. The main risks include academic dishonesty, overdependence on AI, reduced critical thinking, superficial learning, and ethical problems related to data use. These risks can be reduced through clear pedagogical rules, reflective assignments, transparent assessment criteria, and the development of AI literacy among students.

The main conclusion is that artificial intelligence should not replace the teacher or the student’s independent thinking. Instead, it should function as an intellectual assistant that supports inquiry, analysis, creativity, and decision-making. In economic education, the most effective approach is to combine AI tools with project-based learning, case studies, business simulations, digital financial tasks, and student-centered methods.



For universities, it is recommended to develop AI-supported learning modules for economic competence, train teachers in responsible AI use, create academic integrity guidelines, and design practical assignments that require students to critically evaluate AI-generated content. Such an approach will help prepare graduates who are economically competent, digitally literate, ethically responsible, and ready for professional and entrepreneurial activity in the modern economy.

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