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TALABALARINING QAROR QABUL QILISH KO‘NIKMALARINI KOGNITIV USULLAR ORQALI RIVOJLANTIRISH USULLARI
METHODS OF DEVELOPING STUDENTS' DECISION-MAKING SKILLS THROUGH COGNITIVE METHODS

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Abstract
This study aims to develop a scientific and methodological model for enhancing decision-making skills of law students through cognitive teaching methods. The research was conducted using a quasi-experimental design involving 59 participants. Traditional lecture-based instruction was applied in the control group, while the experimental group was taught using case-based learning, decision tree modeling, mind mapping, debate technology, and the integration of an AI-based legal chatbot. Decision-making skills were assessed according to four criteria: problem identification, generation of alternatives, normative justification, and logical conclusion formulation. The results demonstrated a statistically significant improvement in the experimental group ($p < 0.05$). The findings confirm the effectiveness of cognitive approaches in developing analytical thinking and professional decision-making competencies in legal education.

Ключевые слова: decision making, cognitive methods, legal education, case analysis, dual learning, artificial intelligence, analytical thinking, digital competence, analytical thinking, legal chatbot.

Introduction

In the modern legal education system, the formation of students' decision-making competence is of strategic importance. In the legal profession, the processes of analyzing judicial practice, interpreting regulatory documents, resolving legal conflicts, and making procedural decisions rely on complex cognitive operations. Therefore, decision-making skills are closely related not only to knowledge, but also to the ability to think analytically, draw logical conclusions, and evaluate.

From the point of view of cognitive psychology, decision-making is a process of processing information, comparing alternative options, and choosing the optimal solution. Scientific views in this direction were first presented in Jean Piaget's [2] theory of cognitive development, which justified the formation of intelligence through the stages of thinking. Jerome Bruner [3] also

proposed a model of discovery learning in the educational process, emphasizing the importance of developing independent thinking.

In analyzing the decision-making process, the dual system theory (System 1 and System 2) developed by Daniel Kahneman [4] and Amos Tversky [5] is of particular importance. According to it, human decisions are made through fast intuitive thinking and slow analytical thinking. The development of analytical (System 2) thinking is a priority in legal education.

In Uzbekistan, based on the priority idea that "Improving the quality of education is the only correct way for the development of a new Uzbekistan," in order to further improve the quality of training highly qualified legal personnel that meet modern international standards and ensure the inextricable link between legal education, science and practice, the Decree of the President of the Republic of Uzbekistan No. PF-232 was adopted on November 26, 2025[1]. This Decree aims to "introduce the principle of practical training and clinical and dual education aimed at ensuring the inextricable link between legal education processes and practice."

In this regard, the purpose of this study is to develop a scientific and methodological model for developing decision-making skills of law students based on cognitive methods and to empirically substantiate its effectiveness.

Methods

2.1. Methodological structure of the research

This study was organized based on a quasi-experimental method, since the participants consisted of naturally formed academic groups and there was no possibility of random assignment. Therefore, a non-equivalent groups design was used.

A total of 59 students participated in the study. They were divided into two academic groups:

Control group (n=29) – received education using the traditional lecture-seminar method. Classes were organized in the form of explanation of theoretical material and question-and-answer sessions.

Experimental group (n=30) – received education based on cognitive methodology, classes were focused on interactive methods, dual learning and analytical activities.

The study lasted 14 weeks, and during the semester both groups received education based on the same curriculum and topics. The difference was manifested only in the teaching methodology.

The following stages were carried out during the research process:

- ✓ initial diagnostics (pre-test) - the initial level of students' decision-making skills was determined;
- ✓ experimental impact stage - different teaching methods were used for 14 weeks;
- ✓ final evaluation (post-test) - the dynamics of change in decision-making skills was determined.

Hypotheses:H_0 (null hypothesis): Cognitive-based instruction does not significantly improve decision-making skills compared to traditional instruction.

H_1 (alternative hypothesis): Cognitive-based instruction significantly improves decision-making skills compared to traditional instruction.

2.2. Cognitive methods used

The following cognitive methods were used in the experimental group:

Case-Based Learning: Students' analytical thinking and decision-making skills were developed by modeling legal problem situations. Students analyzed real or hypothetical legal situations and carried out the processes of identifying the problem, proposing alternative options, normative justification, and drawing conclusions.

The Decision Tree Model allowed for visualization of possible directions of development of the problem. Students analyzed the consequences and legal bases for each decision point.

Mind Mapping Visualizing the relationship between legal concepts and norms strengthened students' ability to think quickly and understand conceptual connections.

Through debate technology, students developed legal reasoning and argumentation skills by defending positions. This process developed critical thinking and problem-solving skills.

Students' use of artificial intelligence methods was expanded through the integration of the legal chatbot @Juridic_assist_bot, which was developed for the learning process. The chatbot acted as a cognitive support tool and provided systematic assistance in three areas:

Contract review support

The system analyzed draft contracts and identified structural inconsistencies, missing key clauses, and potential legal risks.

Drafting legal questions

Students asked legal questions and were able to receive answers that were organized according to normative information, interpretive reasoning, and inferential synthesis.

Guidelines for creating procedural projects

The chatbot provided structured explanations of applications, complaints, and contract templates, emphasizing formal requirements and legal logic. The chatbot did not replace independent reasoning, but rather acted as a formative scaffolding mechanism that facilitated analytical structure.

2.3. Assessment instruments and statistical analysis

Decision-making skills were assessed based on the following four criteria:

- Problem identification – correctly defining the essence of the legal situation.
- Alternative development – proposing several possible solutions.
- Normative justification – justifying the decision based on legislation.
- Conclusion – forming a logical and well-founded final decision.

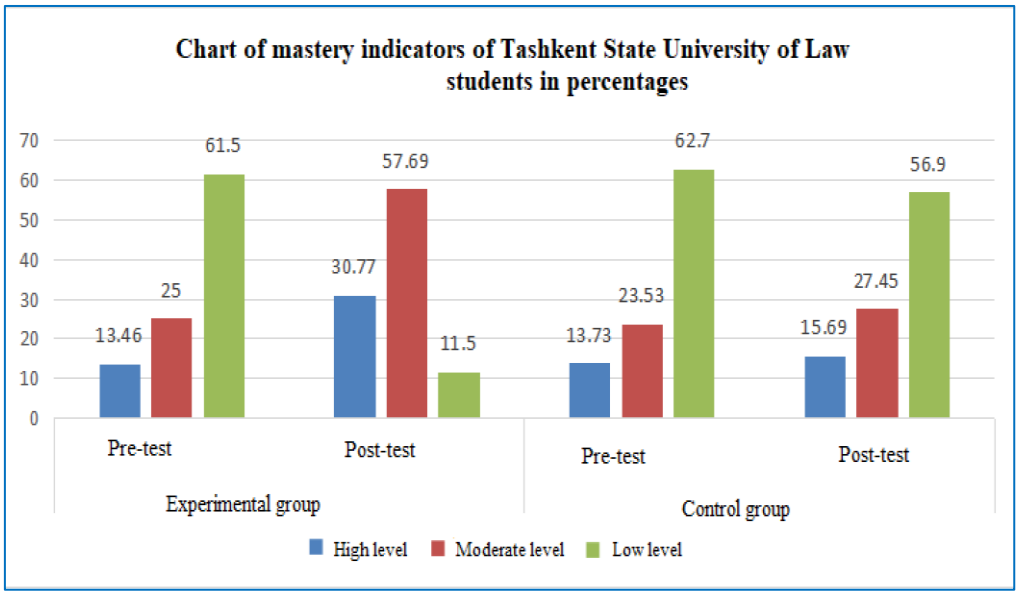
The assessment was carried out on a 100-point scale.

In statistical analysis, the Student t-test method was used to determine the statistical significance of the difference in mean scores between the control and experimental groups, and the correlation analysis method was used to assess the correlation between the components of decision-making.

The data were analyzed at a significance level of $p < 0.05$. This study allowed us to determine the effect of the use of cognitive methods on decision-making skills and to confirm the hypothesis H_1 or reject the hypothesis H_0.

Results

At the end of the experiment, the following results were recorded:



$t = 3.42$, $p < 0.05$

The results showed a statistically significant increase in the experimental group. Decision-making skills increased by 15–18%.

Correlation analysis showed that the level of use of cognitive methods and decision-making outcomes was $r = 0.62$ (moderately strong correlation).

IV. DISCUSSION

The results are consistent with cognitive learning theory. The concept of "reflexive thinking" emphasized by John Dewey[6] is formed through the analysis of problem situations in legal education.

Also, according to Bloom's taxonomy, higher cognitive levels (analysis, evaluation, synthesis)[7] form the basis of decision-making competence.

The results of the study show that:

- cognitive methods enhance students' independent thinking;
- a culture of legal argumentation is formed;
- the ability to analyze systematically is developed.

CONCLUSION

The results of the study show that decision-making skills are a strategic competency in legal education. The methodology developed based on cognitive methods is highly effective. It is advisable to apply the methodological model in legal disciplines (criminal law, civil law, procedural law). In developing digital competence in students, it is necessary to study the possibilities of integration with digital simulation and artificial intelligence tools. At the same time, prompt engineering, the art of giving precise and structured requests to artificial intelligence, is gaining importance as a new digital competency for lawyers.

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