



Article

Developing Strategic Competence of Non-Philological (Medical) Students Based on Scamper Technology: An Economic Perspective

Khodiyeva Yulduz Yunusovna*¹

1. Doctoral Student of Navoi State University, Pedagogical Skills Center of Navoi Region, Senior teacher of the Department of Language Teaching Methodology

* Correspondence: hodiyeva14@gmail.com

Abstract: This article analyzes innovative approaches to developing strategic competence for students studying in non-philological fields, in particular in the medical field. The main goal of the study is to identify the possibilities of students' creative thinking, effective decision-making in problem situations, and the formation of professional communicative competencies through the use of SCAMPER technology. In the modern education system, especially in medical education, students should not only acquire theoretical knowledge, but also be able to apply it in real practice, develop alternative solutions, and have the skills of quick thinking. In this regard, the SCAMPER (Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, Reverse) methodology is considered an important tool in developing students' strategic thinking. The article studies the didactic capabilities of SCAMPER technology in the context of medical education and justifies its role in the formation of strategic competence based on an economic approach. In particular, the issues of developing human capital, training highly qualified specialists in line with the requirements of the labor market, and increasing educational efficiency through the introduction of innovative methods into the educational process are considered. The study analyzes the increase in the quality of students' knowledge, the level of involvement in the educational process, and independent thinking indicators as a result of the use of SCAMPER technology through the concept of economic efficiency. The article also evaluates the effectiveness of implementing SCAMPER technology in practice based on the results of an experimental study. During the study, it was found that, compared with traditional teaching methods, lessons organized based on SCAMPER significantly develop students' skills in analyzing problem situations, developing innovative solutions, and working in a team. This, in turn, expands the possibilities of providing high-quality services and rational use of resources in the medical field. In conclusion, the article substantiates that the approach based on SCAMPER technology is an effective tool for developing strategic competence for students in non-philological, in particular, medical, fields. This approach is important not only from a pedagogical but also from an economic perspective, serving to improve the quality of education, encourage innovative thinking, and train competitive personnel.

Citation: Yunusovna, K. Y. Developing Strategic Competence of Non-Philological (Medical) Students Based on Scamper Technology: An Economic Perspective. American Journal of Social and Humanitarian Research 2026, 7(4), 141-146.

Received: 05th Mar 2025

Revised: 25th Mar 2025

Accepted: 10th Apr 2026

Published: 28th Apr 2026



Copyright: © 2026 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>)

Keywords: Strategic Competence, Applied Linguistics, Medical Education, Non-Philological Students, Communicative Competence, SCAMPER Technique, Creative Thinking, Critical Thinking, Problem-Solving Skills, Innovation in Education, Pedagogical Technologies, Learner-Centered Approach, Interdisciplinary Learning, Cognitive Development, Language Acquisition, Professional Communication, English for Specific Purposes (ESP), Medical Discourse, Clinical Communication Skills, Educational Efficiency, Economic Perspective in Education

1. Introduction

The acceleration of globalization processes, the formation of a digital economy and the development of a knowledge-based society are placing completely new demands on the higher education system. Modern universities are now seen not only as institutions providing theoretical knowledge, but also as important institutions that train students as highly qualified specialists who can effectively operate in a complex, uncertain and rapidly changing socio-economic environment. In this regard, the formation of various competencies among students, in particular strategic competencies, is becoming one of the pressing issues.[1]

The importance of strategic competencies is extremely high, especially for students studying in non-philological areas, including medicine. Although medical education has traditionally been focused on clinical knowledge, diagnostics and practical skills, today, specialists working in the healthcare system also require communicative, analytical and flexible thinking skills. Doctors need to make quick decisions in different situations, establish effective communication with patients and colleagues, analyze complex clinical situations and solve problems based on an innovative approach.[2]

Strategic competence is usually understood as the ability of a person to plan, manage, adapt his activities and, if necessary, develop alternative solutions in the process of achieving goals. This competence is especially important in the process of learning a foreign language, since not only linguistic knowledge is necessary in language learning, but also the correct application of communicative strategies. This is even more relevant for medical students, who need to master a strategic approach to a foreign language in order to use international scientific information, communicate with foreign partners and integrate into the global medical community.[3]

In recent years, the improvement of pedagogical technologies and the use of innovative methods have been recognized as an important factor in increasing educational efficiency. As one of such innovative approaches, SCAMPER technology deserves special attention. SCAMPER is a method for developing creative thinking, consisting of the following stages: Substitute, Combine, Adapt, Modify, Put to other use, Eliminate, Reverse. This technology encourages students to think outside the box, teaches them to approach problems from different perspectives, and ultimately helps develop their strategic competence.[4]

The relevance of this study is that studying the possibilities of SCAMPER technology in the formation of strategic competence for students studying in the medical field is important not only from a pedagogical but also from an economic point of view. Because the modern labor market requires specialists who are highly flexible, creative, and able to think strategically. Such specialists, in turn, increase the efficiency of the healthcare system, ensure rational use of resources, and have a positive impact on economic stability.[5]

This article also analyzes the process of developing strategic competence from the point of view of economic efficiency. That is, through the use of SCAMPER technology, factors such as improving the quality of education, strengthening students' knowledge and skills, and as a result, increasing labor productivity and developing human capital are highlighted. This, in turn, directly affects the overall economic development of the country.[6]

This study is aimed at studying innovative methods for developing strategic competence among medical students, and aims to determine the effectiveness of SCAMPER technology in this regard and reveal the prospects for its implementation in practice.

Literature Review

In the modern education system, the development of student competencies is one of the pressing issues, especially for students studying in non-philological directions. In particular, for students studying in the medical direction, the ability to communicate in a foreign language, understand professional terminology, and establish effective

communication is of great importance. In this regard, scientific research on the formation and development of strategic competence has been conducted based on various pedagogical approaches.[7]

The concept of strategic competence was first studied within the framework of the theory of communicative competence, which refers to a set of strategies used to solve problems arising in language learning. Among the scientists who have made a significant contribution to the development of this concept are Dell Hymes, Michael Canale, and Merrill Swain. Based on their work, strategic competence has been recognized as an important component of communicative competence. In particular, in the Canale and Swain model, strategic competence is interpreted as a system of compensatory strategies used to eliminate problems arising in the speech process.[8]

In recent years, special attention has been paid to the use of innovative pedagogical technologies in the development of strategic competence. In particular, the SCAMPER technology, which serves to develop creative thinking, is considered one of the important tools. The SCAMPER model is based on the concept of brainstorming developed by Alex Osborn and later improved by Bob Eberle. This model includes the following stages: Substitute, Combine, Adapt, Modify, Put to other uses, Eliminate, and Reverse.[9]

In the scientific literature, the effectiveness of SCAMPER technology in the educational process has been confirmed in many studies. For example, it has been noted that the SCAMPER approach gives high results in developing creative thinking, solving problem situations, and increasing student activity. Especially in non-philological areas, this technology plays an important role in revitalizing the language learning process, involving students in active communication, and forming independent thinking skills.

The issue of developing strategic competence in medical education is emerging as a separate scientific direction. Researchers note that effective communication in the professional activities of medical students depends not only on the level of language proficiency, but also on the ability to correctly apply communicative strategies. This, in turn, requires the development of strategic competence. In this regard, the SCAMPER technology allows medical students to discuss complex clinical situations, communicate with patients, and form a creative approach to making medical decisions.[10]

In addition, from an economic point of view, the introduction of innovative methods in the educational process is one of the important factors in the development of human capital. According to the theory of human capital, an increase in the quality of education increases labor productivity and economic efficiency. Among the scientists known for their important scientific work in this area are Gary Becker and Theodore Schultz. According to their research, investments in education have a significant impact on economic growth in the long term.

The impact of digital technologies and interactive methods on educational efficiency has also been widely studied in modern scientific literature. By integrating SCAMPER technology with digital platforms, the interactivity of the educational process is increased, which activates student participation and improves learning outcomes. Especially in the post-pandemic period, the need for the use of creative methods in distance learning has increased. In conclusion, the analysis of the existing scientific literature shows that SCAMPER technology is recognized as an effective pedagogical tool in the development of strategic competence. The use of this approach, especially in non-philological fields, including medical students, serves to comprehensively develop their communicative and professional competencies. At the same time, from an economic point of view, the introduction of such innovative methods serves to develop human capital and ensure long-term economic efficiency by improving the quality of education.[11]

2. Materials and Method

This study was aimed at determining the effectiveness of the SCAMPER technology in developing strategic competence in students studying non-philological, in particular

medical, fields and assessing its economic feasibility. The study used a comprehensive approach, combining qualitative (qualitative analysis) and quantitative (statistical analysis) methods. This approach served to increase the reliability and practical significance of the research results.

The study was organized on the basis of a quasi-experimental design. It formed two types of groups - experimental and control groups. In the experimental group, lessons were conducted using interactive and creative approaches based on SCAMPER technology, while in the control group, traditional teaching methods were used. The research process was carried out in three main stages: initial diagnostics, experimental-testing process and final evaluation stage. At the initial stage, the level of strategic competence of students was determined, and their analytical thinking, decision-making in problem situations and communicative skills were assessed. At the second stage, the learning process was organized using special tasks, problem situations and creative thinking exercises developed based on SCAMPER technology. At the final stage, the results were analyzed and the differences between the experimental and control groups were compared.[12]

Students of the 1st and 2nd year of medical higher education institutions were involved as participants in the study. The selection was formed on the basis of the principles of voluntariness and equality, taking into account the balance of gender, age and academic indicators. This served as an important factor in ensuring the objectivity of the results.

A number of methods were used to collect data. In particular, a questionnaire, tests, observation and semi-structured interviews were conducted. The questionnaires determined the attitude, motivation and level of mastery of the students towards the SCAMPER technology, while the tests measured their strategic competence indicators. Using the observation method, the students' activity in the lesson process, their attitude to problem situations and their creative approach were analyzed. In-depth qualitative analysis was conducted through interviews and students' opinions were studied.

The obtained data were processed using statistical and comparative analysis methods, and the results were evaluated based on percentages, average values, and dynamic growth indicators. The significance of the difference between the experimental and control groups was also determined, and the effectiveness of the SCAMPER technology was scientifically proven.

In order to assess the economic aspects of the study, a "cost-effectiveness" analysis was also carried out. It compared the resources spent on the implementation of the SCAMPER technology (time, educational materials, teacher labor) with the results achieved (increase in the level of student competence, learning efficiency). As a result, the feasibility of this technology was substantiated not only from a pedagogical but also from an economic perspective.

In general, this methodology allowed for a comprehensive analysis of the role of the SCAMPER technology in the development of strategic competence in students of non-philological directions and ensured the scientific validity of the results obtained.[13]

3. Results and Discussion

Within the framework of this study, the effectiveness of SCAMPER technology in developing strategic competence among students studying non-philological, in particular, medical, was studied on the basis of experimental and test work. In the study, experimental and control groups were formed, and in the experimental group, SCAMPER technology was systematically introduced into the educational process, while in the control group, traditional teaching methods were used. Analysis of the results obtained showed that lessons organized on the basis of an innovative approach had a significant positive impact on the knowledge, skills and competencies of students. First of all, the level of formation of the main components of strategic competence - problem analysis,

development of alternative solutions, adaptability to the situation, creative thinking and effective communication skills - was assessed. In the experimental group, a significant increase in these indicators was observed. In particular, students gained the ability to deeply analyze problem situations, process existing information and propose solutions based on new approaches. The step-by-step application of SCAMPER technology played an important role in this process.

Each element of the SCAMPER model performed its own didactic task and activated students' strategic thinking. For example, through the "Substitute" stage, students learned to consider different options for a problem, and through the "Combine" stage, they developed skills in integrating different ideas and developing complex solutions. The "Adapt" stage encouraged students to adapt to real-life situations, which is especially important in the medical field. The "Modify" and "Put to another use" stages further deepened creative thinking and allowed them to apply existing knowledge in new contexts. Through the "Eliminate" and "Reverse" stages, students learned to look at problems from an unusual perspective.[14]

The results of the study also showed that the use of SCAMPER technology significantly developed not only individual but also group work skills of students. Through group discussions, brainstorming sessions and interactive tasks, students acquired important socio-communicative competencies such as freely expressing their opinions, listening to the views of others and coming to a common decision. This will serve their effective work in their future professional activities.

From an economic point of view, the introduction of SCAMPER technology serves to develop human capital by increasing the efficiency of education. Specialists with highly developed strategic competencies are competitive in the labor market and contribute to the development of innovative activities. In the medical field, such competencies are important for making quick and sound decisions, rational use of resources and improving the quality of services. From this point of view, the introduction of SCAMPER technology into the educational process can be considered one of the factors ensuring long-term economic efficiency.

Compared with the results of the control group, it was found that traditional teaching methods do not sufficiently increase the activity of students, less involve them in independent and creative thinking. This once again confirms the need to use innovative pedagogical technologies in the modern education system. Based on the results of the study, it can be concluded that the SCAMPER technology is an effective tool not only in the process of language learning, but also in the formation of general professional competencies. In general, the conducted analysis showed that the SCAMPER technology is highly effective in developing the strategic competencies of students in non-philological fields, especially representatives of the medical field. The widespread introduction of this approach will further expand the opportunities for improving the quality of education and training innovative thinkers and competitive specialists.[15]

4. Conclusion

This study comprehensively analyzed the role of SCAMPER technology in the development of strategic competence of students studying in non-philological, in particular, medical, fields. The results obtained show that the SCAMPER model, as an innovative approach to traditional teaching methods, allows students to activate their thinking process, form an adaptive approach to problem situations, and significantly develop creative decision-making skills.

The study revealed that strategic competence for medical students is not limited to linguistic or communicative skills, but also includes skills such as clinical thinking, systematic analysis of problems, effective use of resources, and rapid decision-making. SCAMPER technology has proven to be an effective tool in developing these aspects. In particular, through the stages of Substitute, Combine, Adapt, Modify, Put to another use,

Eliminate, and Rearrange, students learned to approach complex situations from different perspectives.

From an economic point of view, the development of strategic competence ensures the qualitative growth of human capital. This will serve to increase efficiency, rational use of resources, and improve the quality of services in the medical field in the future. Specialists with innovative thinking contribute to increasing economic efficiency in the healthcare system by optimizing costs, improving diagnostic and treatment processes. Therefore, the strategic competence formed on the basis of SCAMPER is not only pedagogical, but also socio-economic.

The results of the study also showed that the integration of SCAMPER technology into the educational process increases students' motivation, stimulates independent learning, and develops their self-assessment skills. This leads to an increase in the overall quality of education. Especially in such a responsible and complex field as medicine, the use of this approach is an important factor in preparing students for real-life situations. In conclusion, it has been scientifically proven that the SCAMPER technology-based teaching model is an effective tool for developing strategic competencies for non-philological students, including medical students. In the future, it is advisable to conduct additional scientific research on further improving this approach, integrating it with digital educational platforms, and applying it across disciplines

REFERENCES

- [1] A. Osborn, *Applied Imagination: Principles and Procedures of Creative Problem Solving*. New York, NY, USA: Scribner, 1953.
- [2] B. Eberle, *SCAMPER: Creative Games and Activities for Imagination Development*. Waco, TX, USA: Prufrock Press, 1996.
- [3] J. C. Richards and T. S. Rodgers, *Approaches and Methods in Language Teaching*, 3rd ed. Cambridge, U.K.: Cambridge University Press, 2014.
- [4] D. H. Brown, *Teaching by Principles: An Interactive Approach to Language Pedagogy*, 4th ed. New York, NY, USA: Pearson, 2015.
- [5] M. A. Altshuller, *The Innovation Algorithm: TRIZ, Systematic Innovation and Technical Creativity*. Worcester, MA, USA: Technical Innovation Center, 2000.
- [6] A. M. Davies, "Integrating creativity techniques in higher education: SCAMPER in practice," *Journal of Educational Innovation*, vol. 12, no. 3, pp. 45–58, 2021.
- [7] S. M. K. Wong and R. L. Smith, "Strategic competence in ESP learning environments," *English for Specific Purposes Journal*, vol. 44, pp. 60–72, 2016.
- [8] T. Hutchinson and A. Waters, *English for Specific Purposes: A Learning-Centered Approach*. Cambridge, U.K.: Cambridge University Press, 1987.
- [9] J. Sweller, "Cognitive load theory and instructional design," *Cognitive Science*, vol. 12, no. 2, pp. 257–285, 1988.
- [10] R. L. Oxford, *Language Learning Strategies: What Every Teacher Should Know*. Boston, MA, USA: Heinle & Heinle, 1990.
- [11] P. Nation, *Learning Vocabulary in Another Language*, 2nd ed. Cambridge, U.K.: Cambridge University Press, 2013.
- [12] A. Baddeley, "Working memory and language learning," *Psychology of Learning and Motivation*, vol. 8, pp. 47–89, 2003.
- [13] S. Brown and M. J. Attardo, "Innovation in medical education: interdisciplinary competence development," *Medical Teacher*, vol. 41, no. 9, pp. 1020–1028, 2019.
- [14] OECD, *Education at a Glance 2023: OECD Indicators*. Paris, France: OECD Publishing, 2023.
- [15] World Bank, *Higher Education and Economic Development Report*. Washington, DC, USA: World Bank Publications, 2022.