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DIAGNOSTIC TOOLS FOR STUDYING SOFT SKILLS OF UNIVERSITY STUDENTS

In the context of the modern educational process, the soft skills' development is becoming an integral part of preparing students for professional activities. The purpose of this article is to create and test a diagnostic tool for assessing and further developing soft skills of university students. The authors focused on the most popular soft skills identified at the World Economic Forum in Davos in 2023: critical thinking, the ability to solve complex problems, creativity, teamwork skills and emotional intelligence. The main attention is paid to the use of a set of diagnostic methods, such as the E. Torrance Creativity Test, the L. Starkey Critical Thinking Test, the Case Method for Assessing Complex Problem Solving Skills, the Group Project Method and the N. Hall Method for Assessing the Level of Emotional Intelligence. The soft skills' diagnostics among students made it possible to identify strengths and weaknesses, which will serve as the basis for further development of programs to improve and develop these skills. Based on the analysis of the obtained results, the authors proposed recommendations for the comprehensive development of students' soft skills: conducting regular diagnostics, integrating soft skills into the educational process, using innovative practical teaching methods, and creating a favorable educational environment. The diagnostic tools proposed in this article will serve as a foundation for continuing research

in the field of assessment and development of soft skills in the educational environment.

Keywords: soft skills, university students, diagnostic tools, methodology, critical thinking, creativity, teamwork, emotional intelligence

Introduction

Nowadays, the economic situation in the world causes many challenges. In this regard, employers are looking for flexible graduates who can effectively develop organizations and compete successfully in the labor market. Today's graduates are expected not only to obtain good diplomas and excellent academic achievements, but also to possess soft skills. Globalization, leading to increased integration of different economic sectors, highlights the demand for graduates with highly developed soft skills. Despite the relevance of the process of developing soft skills, their objective assessment is difficult due to the multi-layered nature of these qualities.

The goal of this article is to develop and test a diagnostic tool that will enable objective measurement of the soft skills development level in students. The results obtained will demonstrate the strengths and weaknesses of students in the context of soft skills development and will be used in the future to find ways for their further improvement.

The concept of “soft skills” covers a wide range of qualities and abilities that are important in both personal and professional life. These skills are not related to a specific profession but play a decisive role in a person's successful social and professional adjustment. The Cambridge dictionary defines soft skills as personal qualities that allow you to interact effectively with other people and achieve harmony in communication [1].

For the successful formation and evaluation of the soft skills level in students, the development and use of appropriate diagnostic tools is required. Such tools should consider the diversity and multi-layered nature of these abilities, providing accurate and objective information about each student's current skill level.

Johnson (2012) proposed the use of systematic observation as a method to assess soft skills [2]. This method involves observing students' behavior in different situations and recording the manifestations of skills such as teamwork, communication skills and problem solving.

Kim and Lee (2015) conducted a study that used self-assessment to diagnose soft skills. They developed questionnaires in which students self-assessed their communication skills, leadership skills, and adaptability [3]. This method made it possible to identify students' personal feelings and self-esteem, which gave a more complete picture of their soft skills development.

Sanchez and Brown (2017) suggested the use of specialized tests to assess specific aspects of soft skills [4]. For example, tests to assess emotional intelligence and problem-solving ability. Their research showed that such tests can be an effective tool for diagnosing soft skills if they are properly designed and tailored to the context.

Research by White and Black (2016) showed that a combined approach, including observation, self-assessment and specialized tests, is quite effective for assessing soft skills [5]. They concluded that using multiple methods provides a more accurate and objective picture of students' soft skill development.

In turn, Ivanov and Petrova (2018) confirmed in their study that teachers often find it difficult to objectively assess students' soft skills without using structured methods [6]. They suggested the development of standardized questionnaires and tests that can be used by educators to assess soft skills in order to minimize subjectivity and increase diagnostic accuracy.

Diagnosing soft skills requires the use of various techniques and tools that complement each other. An integrated approach, including observation, self-assessment and specialized tests, allows to more accurately and objectively assess the level of soft skills development in students. This, in turn, helps to improve the educational process and the comprehensive development of students' personalities.

Materials and methods

60 students of undergraduate educational programs of NJSC "Toraighyrov University" took part in the study. When choosing diagnostic tools to study the soft skills development in university students, we focused on the most popular soft skills presented at the International Economic Forum in Davos: the ability to solve complex problems, critical thinking, creativity, teamwork skills and emotional intelligence [7]. These skills are essential for successful professional and personal life and their diagnosis is a major challenge for educational institutions.

Table 1 provides possible methods in diagnostic tools to study the level of soft skills development in university students:

Table 1 – Diagnostic tools

No	Soft skills	Methodology	Objective
1	Critical thinking	Starkey Critical Thinking Test adapted by E. L. Lutsenko	Identify and measure students' level of critical thinking, including their ability to analyze information, evaluate arguments, and form logical conclusions [8].
2	Solving complex problems	Case Method	Assess students' ability to analyze and solve complex problems in conditions close to real life [9].

3	Creativity	E. Torrance Diagnostics of Creative Thinking adapted by E. E. Tunik	Explore students' level of creativity, including their capacities for divergent thinking, originality, flexibility and fresh idea development [10].
4	Emotional intelligence	N. Hall Emotional Intelligence Test adapted by E. I. Ilyin	Assess students' level of emotional intelligence to identify their strengths and weaknesses in recognizing, understanding and managing emotions and interacting with others [11].
5	Teamwork	Group Project Method	Assess students' teamwork skills, including their ability to communicate effectively, collaborate, assign roles and responsibilities, and make collective decisions to achieve a common goal [12].

Critical thinking is the ability to analyze, evaluate and make informed judgments and decisions. It includes the ability to reason logically, recognize assumptions, evaluate arguments, and form independent and objective opinions. To study the critical thinking level of university students, we chose Starkey Critical Thinking Test adapted by E. L. Lutsenko. Participants are asked to analyze texts, identify logical fallacies and formulate their own conclusions to assess their ability to think deductively and inductively, analyzing arguments and constructing logical conclusions. The evaluation of the results of Starkey Critical Thinking Test adapted by E. L. Lutsenko is carried out by summing the points for each task, with the interpretation of the total score according to the level of critical thinking: high, medium or low.

The next important skill within soft skills is complex problem-solving skills, which include the ability to analyze multifaceted problems, develop strategies to solve them, and make informed decisions under conditions of uncertainty. To study this skill, we chose the Case Method, which consists of analyzing real or simulated situations. Participants need to solve problem holistically through analysis and decision making. Complex problem-solving skills can be assessed by observing case analysis and the interaction of group participants. Evaluation criteria: accuracy of problem definition, depth of analysis, validity of decisions and ability to clearly and logically present your conclusions.

Creativity, as one of the key soft skills, includes the ability to generate original ideas, find innovative solutions and approach problems from an innovative

perspective. To measure the level of creativity, E. Torrance Diagnostics of Creative Thinking Method adapted by E. E. Tunik was chosen. This test includes verbal and non-verbal tasks to assess various aspects of creative thinking. Each task is scored against the above criteria and the results are summed to produce an overall score that reflects the participant's level of creative thinking.

To study the level of emotional intelligence in university students, we chose N. Hall's methodology, which allows us to assess the ability to recognize, understand and manage our own emotions and the emotions of other people. The technique is a questionnaire consisting of statements to which participants need to answer, assessing their degree of agreement or disagreement on a scale from 1 to 5 (where 1 is «strongly disagree», 5 «strongly agree»). Test results are calculated by summing the scores on the following scales: self-awareness, self-regulation, motivation, empathy, and social skills.

Developed teamwork skills allow a person to interact effectively with others, cooperate to achieve common goals, exchange information and manage conflict situations. To study these soft skills, we chose the Group Project Method. Participants work in groups to complete tasks, allowing observation and assessment of their skills in interaction, collaboration and collective decision-making. The teacher evaluates the work of each group according to pre-formed criteria, such as planning, organization, allocation of roles and conflict resolution.

The selected diagnostic tools were developed taking into account the need for a comprehensive assessment of students' soft skills, with each method aimed at identifying specific aspects of soft skills, ensuring the objectivity of the results and an accurate determination of their level of development.

Results and discussions

The diagnostics conducted among the students allowed a comprehensive assessment of the level of each key skill included in the soft skills. Below are the generalized results of diagnosing the soft skills of students at NJSC "Toraighyrov University" (Table 2).

Table 2 – Results of soft skills diagnostics

No	Skill	Level/scale	Percentage of students
1	Critical Thinking	High	32.5 %
		Medium	54.8 %
		Low	12.7 %

2	Solving complex problems	High	38 %
		Medium	51.5 %
		Low	10.5 %
3	Creativity	Low	5.8 %
		Below average	5.7 %
		Slightly below average	11.2 %
		Average	40.4 %
		Slightly above average	9.3 %
		Above average	19.2 %
		Excellent	8.4 %
4	Emotional intelligence	High	58.8 %
		Medium	30.1 %
		Low	11.1 %
5	Teamwork	High	54.3 %
		Medium	29.2 %
		Low	16.5 %

According to the results of diagnostics of the students' critical thinking level using the L. Starkey test, 32.5 % of students have a high level, which indicates their ability to accurately analyze information, search for logical errors and the ability to formulate reasoned conclusions. The average level is typical for the overwhelming majority of respondents (54.8 %), which indicates the dominance of students with developed analytical abilities. 12.7 % of students demonstrated a low level of critical thinking, which requires targeted work and support to improve their level of critical thinking.

The assessment of skills in solving complex problems showed the following results: a high level is typical for 38 % of students, an average level is 51.5 %, a low level is 10.5%. Most students demonstrated high and average levels, which indicates their fairly confident mastery of the skills of analysis and making complex decisions. Despite this, some students have a fairly low level, which undoubtedly requires searching for reasons and development ways.

When diagnosing the level of creative thinking, we found the following picture: most students are at the average level or above (40.4 % and 19.2 %) – the ability for flexible and original thinking is demonstrated; the number of students with a slightly above-average level of creative thinking is 9.3 %. 8.4 % demonstrated an excellent level of creativity, which indicates a high potential for flexible and original thinking. At the same time, 11.2 % of students are slightly above average, 5.7 % are below the average, 5.8% showed a low level of creativity.

These students need additional classes and practices to strengthen and develop their creative potential.

Based on the results of N. Hall's methodology, we determined that 58.8 % of students have a high level of emotional intelligence, which indicates their skills of adaptation to social interactions and the ability to understand and manage emotions. 30.1 % of students, having an average level of emotional intelligence, demonstrate confident, but not fully developed skills in the field of emotional interaction. 11.1 % of students have a low level and are prone to difficulties in this area. They require the creation of programs aimed at developing empathy, emotion management and skills of interaction with others, which will improve their adaptation in the social and professional context.

Based on the results obtained in the teamwork skills' diagnostics among students, we can talk about the prevalence of a high level (54.3 %) of skills for effective interaction, role distribution and conflict resolution. 29.2 % are at an average level, which enables them to solve team tasks, but development work is required to achieve full effectiveness. The remaining 16.5 % are characterized as individuals with a low level of teamwork skills, they need to be more often involved in group projects with an emphasis on active interaction, communication and joint achievement of goals.

Summarizing the results obtained, we can say that the most developed soft skills among students of NJSC "Toraighyrov University" are emotional intelligence, teamwork skills and creativity, which is undoubtedly important in the framework of professional formation and development. Despite this, critical thinking and skills for solving complex problems require additional attention.

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Conclusion

Effective diagnostics of soft skills using these techniques helps to identify the strengths and weaknesses of students, providing valuable data for their further personal and professional growth. The diagnostic tools used allowed us to objectively assess the level of soft skills' development that are most in demand today. The results showed that most students have the average or above the average for most skills. However, there is a group of students with low scores for all soft skills studied. Based on this, we have formulated the following recommendations:

- conducting regular diagnostics – it is necessary to regularly assess the level of students' soft skills development, using the presented diagnostic tools, to monitor their progress and promptly identify weaknesses that require additional work;
- integrating soft skills into the educational process – introducing tasks that require teamwork, critical analysis and solving complex problems, through which students will be able to develop flexible skills in real educational situations;
- using innovative practical teaching methods – case studies, group projects, trainings, role-playing games, tasks that stimulate critical thinking, creativity for a more practice-oriented acquisition of skills that are in demand today;
- creating a favorable educational environment, encouraging students to show initiative, leadership in group projects, the ability to take responsibility, participate in situations that require emotional stability – all this contributes to the development of soft skills.

In conclusion, it can be noted that the implementation of a systematic assessment of soft skills into the educational process at a university contributes to the comprehensive development of students and prepares them for the complexities and challenges of future professional activity.

The presented diagnostic tool is the basis for further research in the field of soft skills development. The planned work will be aimed at studying the dynamics of students' soft skills development in the learning process, assessing the effectiveness of the proposed programs and finding ways to facilitate the disclosure of the potential of each student and increasing competitiveness in the labor market.

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ЖОО БІЛІМ АЛУШЫЛАРЫНЫҢ SOFT SKILLS ЗЕРТТЕУДІҢ ДИАГНОСТИКАЛЫҚ ҚҰРАЛЫ

Қазіргі білім беру үдерісі жағдайында soft skills дамыту білім алушыларды кәсіби қызметке даярлаудың ажырамас бөлігіне айналады. Бұл мақаланың мақсаты ЖОО білім алушыларының soft skills-ті бағалау және одан әрі дамыту үшін диагностикалық құралдарды құру және апробациясы болып табылады. Авторлар 2023 жылы Давосстағы өткен Халықаралық экономикалық форумында атап өтілген ең көп сұранысқа ие soft skills-ке назар аударды: сыни ойлау, күрделі мәселелерді шешу қабілеті, креативтілік, командада жұмыс істеу дағдылары және эмоционалды интеллект. Э. Торранстың креативтілік сынағы, Л. Старкидың сыни ойлау сынағы, Күрделі есептерді шешу дағдыларын бағалауға арналған кейс әдісі, Топтық жосба әдісі және эмоционалды интеллект деңгейін бағалауға арналған Н. Холл әдістемесі сияқты диагностикалық әдістер кешенін қолдануға баса назар аударылады. Білім алушылар арасында софт скиллс диагностикасы күшті және әлсіз жақтарын анықтауға мүмкіндік берді, бұл осы дағдыларды жақсарту және дамыту үшін бағдарламаларды одан әрі дамытуға негіз болады. Алынған нәтижелерді талдау негізінде авторлар білім алушылардың икемді дағдыларын жсан-жақты дамыту үшін ұсыныстар ұсынды: тұрақты диагностика жүргізу, soft skills-ті білім беру процесіне біріктіру, оқытудың инновациялық практикалық әдістерін қолдану, қолайлы білім беру ортасын құру. Осы мақалада ұсынылған диагностикалық құралдар жиынтығы білім беру ортасындағы софт скиллс бағалау және дамыту саласындағы зерттеулерді жалғастыру үшін негіз болады.

Кілтті сөздер: soft skills, ЖОО білім алушылары, диагностикалық құралдар жинағы, әдістеме, сыни

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ДИАГНОСТИЧЕСКИЙ ИНСТРУМЕНТАРИЙ ИССЛЕДОВАНИЯ SOFT SKILLS ОБУЧАЮЩИХСЯ ВУЗА

В условиях современного образовательного процесса развитие soft skills становится неотъемлемой частью подготовки обучающихся к профессиональной деятельности. Целью данной статьи является создание и апробация диагностического инструментария для оценки и дальнейшего развития soft skills обучающихся вуза. Авторы сосредоточили внимание на наиболее востребованных soft skills, выделенных на Международном экономическом форуме Давосе в 2023 году: критическое мышление, способность решать сложные задачи, креативность, навыки работы в команде и эмоциональный интеллект. Основное внимание уделяется использованию комплекса диагностических методов, таких как Тест креативности Э. Торранса, Тест критического мышления Л. Старки, Кейс-метод для оценки навыков решения сложных задач, Метод группового проекта и Методика Н. Холла для оценки уровня эмоционального интеллекта. Проведенная диагностика soft skills среди обучающихся позволила определить сильные и слабые стороны, что послужит основой для дальнейшей разработки программ для улучшения и развития этих навыков. На основе анализа полученных результатов, авторы предложили рекомендации для всестороннего развития гибких навыков обучающихся: проведение регулярной диагностики, интеграция soft skills в образовательный процесс, применение инновационных практических методов обучения, создание благоприятной образовательной среды. Диагностический инструментарий, предложенный в данной статье, послужит фундаментом для продолжения исследований в области оценки и развития soft skills в образовательной среде.

Ключевые слова: soft skills, обучающиеся вуза, диагностический инструментарий, методика, критическое мышление, креативность, работа в команде, эмоциональный интеллект

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