

DIDACTIC OPPORTUNITIES FOR DEVELOPING STUDENTS' PROFESSIONAL- EXTREME COMPETENCIES

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Annotation: This article analyzes the didactic opportunities for developing students' professional-extreme competencies in the modern education system. It explores the formation of skills such as adaptation to extreme situations encountered in various professional activities, making quick decisions, resilience to stress, and ensuring safety—all of which are linked to scientifically grounded approaches. The study highlights the importance of pedagogical technologies such as simulation training, activity-based learning, interactive methods, and reflection. Additionally, the experiences of the United States, Germany, Russia, and Uzbekistan are examined, demonstrating the urgency of implementing innovative approaches in the educational process.

Keywords: Professional-extreme competencies, didactic opportunities, extreme situations, stress resilience, simulation training, activity-based learning, interactive methods, reflection, pedagogical technologies, competency-based approach.

The modern education system demands the preparation of specialists who can effectively respond to the rapidly evolving labor market needs—flexible, proactive, and capable of performing efficiently in any professional conditions. Particularly, skills such as independent decision-making in various risk-prone, complex, and uncertain situations, stress resilience, and ensuring safety—collectively known as professional-extreme competencies—have gained significant importance in today's world.

Many professions—such as military service, emergency response, law enforcement, healthcare, mining, energy, and transportation—require their specialists to act correctly in extreme situations, think quickly, and maintain strong social-psychological preparedness. The effective use of didactic opportunities in the educational process plays a crucial role in preparing students for real-life situations.

From this perspective, training students to handle extreme conditions, teaching them to make informed decisions in challenging professional scenarios, and developing their professional-extreme competencies are among the priorities of modern vocational education. In this process, didactic approaches, innovative methods, modular curricula, and simulation exercises are of paramount importance.

Therefore, an in-depth study and practical application of the didactic opportunities for developing professional-extreme competencies are considered an urgent scientific and practical issue.

In foreign countries—particularly the United States, Germany, Japan, Canada, and other developed nations—the issue of preparing individuals to work in extreme conditions has been extensively studied on a scientific and practical basis. The following areas have seen significant development in these countries:

Professional resilience and crisis management skills are integrated into educational programs as essential components (Boyd & McGarry, 2017).

Simulation-based training is widely used in fields such as emergency response, medicine, and aviation (Gaba, 2007).

In terms of didactic approaches, constructivist approaches, activity-based learning, and experiential learning are prevalent (Kolb, 1984).

In the United States, organizations such as FEMA and NIOSH have developed educational resources on how to act in extreme situations.

In Russia, Kazakhstan, Belarus, and other CIS countries, research on preparing individuals to work in extreme conditions has mainly focused on the military, emergency response, law enforcement, and technical fields:

In Russia, scholars such as A.A. Derkach, V.G. Zazykin, Yu.M. Orlov, and V.A. Barabanshchikov have conducted research on psychological preparedness, professional stress, and decision-making strategies.

In Kazakhstan, researchers S.N. Sabirova and K. Kuserbaev have recommended the use of modular educational programs and interactive methods to develop professional-extreme competencies.

From a didactic perspective, studies have explored the integration of professional and psychological training based on a competency-based approach.

In Uzbekistan's scientific and practical environment, this topic has gained prominence in recent years, particularly within the contexts of vocational education, pedagogical technologies, emergency situations, and military training.

Researchers such as V.R. Jalolov, Sh.A. Nishonova, and A.X. Saidov have conducted studies on general professional competencies, stress resilience, and students' ability to make independent decisions in extreme conditions.

Between 2021 and 2024, experimental studies on developing professional competencies—including extreme components—have been conducted within scientific projects under the Ministry of Higher Education, Science, and Innovation (e.g., the use of IT technologies and simulation training in professional preparation).

Pedagogical institutes are introducing courses related to extreme conditions, although comprehensive methodological foundations have not yet been fully established.

Professional-extreme competencies refer to an integrated set of skills that enable students to act independently in complex, uncertain, dangerous, or stressful situations, make quick decisions, maintain psychological resilience, adhere to safety protocols, and perform efficiently in professional activities. Methodological approaches play a crucial role in shaping these competencies.

Modeling the Learning Process (Simulation): Artificially creating extreme conditions (e.g., using emergency scenarios in training sessions). Dangerous situations are simulated through computer simulators, virtual reality (VR), and interactive game-based technologies, providing a safe yet highly realistic environment for preparation.

Activity-Based Learning Approach: Engaging students in solving various professional tasks (problem-based assignments) and practical exercises on decision-making in extreme conditions. Didactic tools such as “Production Scenarios” and “Emergency Situation Algorithms” are used to enhance learning.

Competency-Based Approach: Education is structured around competencies rather than just knowledge (knowledge + skills + attitude). Evaluation criteria for extreme competencies are developed, and assessment methods such as reflection, portfolios, and observation sheets are applied.

Visualization-Based Methods: Using graphics, videos, and visual models to explain the consequences of emergency situations. Techniques like “Brainstorming” and “Scenario-Based Role Playing” foster analytical and critical thinking in students.

Interactive Methods: Technologies such as “Fishbone,” “Cluster,” and “Case-study” are used to analyze extreme situations. Team-based activities help develop competencies like leadership, responsibility, and time management in students.

Reflective Approach: Conducting analytical discussions after each learning activity. Introducing reflection sheets to allow students to self-assess and determine their psychological state.

An effective methodological approach to developing professional-extreme competencies involves an integrated system that combines active, interactive, simulation-based, and reflective learning methods. This prepares students to handle real-life hazardous situations effectively.

In the modern labor market, many professions require individuals to operate in extreme conditions, meaning environments that are dangerous, uncertain, and demand rapid decision-making. To prepare for such situations, students need to develop the following core competencies (Derkach A.A., Zazykin V.G., 2003):

Stress resilience

Rapid decision-making

Adherence to safety protocols

Emotional stability

Teamwork and leadership

From a didactic perspective, the formation of extreme competencies is achieved through the following approaches:

a) Simulation and Modeled Learning:

Research by Gaba (2007) has proven the effectiveness of simulation-based methods in preparing professionals for extreme conditions. These methods provide safe yet realistic training environments in fields such as medicine, military service, and aviation.

According to Kolb’s (1984) experiential learning theory, students learn from their own experiences, enabling them to better prepare for real-life situations.

b) Activity-Based Learning:

Students engage in tasks that simulate real-life situations, allowing them to develop action algorithms for extreme conditions. According to V.A. Slavenin, knowledge acquired through active engagement is more likely to become stable and functional competencies.

c) Use of Interactive Methods:

Techniques such as “Case Study,” “Role-Playing,” “Brainstorming,” and “Debate” help students make decisions, express opinions in risky situations, and collaborate to solve problems (Johnson & Johnson, 2005). These methods foster communication skills, social adaptability, and psychological resilience in learners.

d) Reflection and Self-Analysis:

After each session, students must assess their own performance, identify mistakes, and explore ways to improve (Schön, 1983 – *Reflective Practice*). This approach teaches students self-regulation and alertness in hazardous situations.

e) Integrated Assessment System:

To evaluate professional-extreme competencies, specific criteria are required, including reaction speed, adherence to safety measures, communication effectiveness, and response to stress. The activity-based assessment approach by B.D. Elkonin and V.V. Davydov is considered highly relevant in this context. Through Virtual Reality (VR) and Augmented Reality (AR) technologies, students can interactively practice how to respond in extreme situations (Sitzmann, 2011).

Educational simulators (e.g., firefighting, accident scenarios, emergency medical response) replicate real training exercises.

Scientific research indicates that the development of professional-extreme competencies is successfully achieved through didactically grounded approaches. These approaches include activity-based learning, simulation, reflection, interactive methods, and psychological preparedness.

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