PEDAGOGICAL CONDITIONS FOR THE FORMATION OF HYPOTHETICAL THINKING IN FUTURE BACHELORS OF TECHNICAL DIRECTIONS

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A B S T R A C T	K E Y W O R D S
This article presents the theoretical justification for the selection of pedagogical conditions that, in our opinion, contribute to the effective formation of hypothetical thinking in future bachelors of technical directions of education.	Hypothetical thinking, pedagogical conditions, future bachelors, interactive teaching, axiological approach, etc.

Introduction

First of all, let's consider the meaning of the concept of "condition". In the explanatory dictionary, "condition" is defined as: 1) a state on which something depends; 2) rules established in a certain area of life, activity; 3) an environment in which something happens. In the philosophical encyclopedic dictionary, a condition is defined as "an environment on which something else depends; one that lives and cannot exist without it." In the psychological dictionary, this concept is given as "... a set of internal and external reasons that determine the psychological development of a person, accelerate or slow it down, and affect the process of development, its dynamics and final results".

Pedagogical conditions are often considered in pedagogy as a set of aspects of the educational environment that ensure the achievement of the necessary pedagogical results.

For example, according to A.F. Amend, pedagogical conditions are a set of measures of the educational process that ensure the required level of development of the desired category of the student.

A.Ya. Nayn considers pedagogical conditions as a set of content, forms, methods, means and objective capabilities of the material and spatial environment aimed at solving the set tasks.

N.V. Ippolitova and N.S. Sterkhova defined pedagogical conditions as "... one of the components that reflects the sum of the capabilities of education and the material and spatial environment, affects the personal and procedural aspects of the pedagogical system, ensures its effective functioning and development" [2, 12-b].

L.V. Lvov considers pedagogical conditions as "a set of measures that form the professional-educational environment of the educational process (the internal environment of the educational system) and contribute to the effective achievement of educational goals".

From the above analysis of the works of researchers, we can conclude that the authors' opinions do not differ much from the opinion that pedagogical conditions are a set of measures aimed at ensuring a favorable educational environment for the successful solution of pedagogical problems.

When developing pedagogical conditions, it is also recommended to rely on the position of N.M. Yakovleva, according to whom they "... should include not only external conditions for the pedagogical process, but also its internal characteristics" [2, 34-b].

Taking into account the above, we come to the conclusion that in our case pedagogical conditions are measures, essentially a set of external conditions designed by the teacher, which turns out to be an assumption that involving students in these conditions will help them form hypothetical thinking. Based on this idea, the pedagogical conditions we have developed are directly related to our understanding of the essence of the concept of hypothetical thinking of future bachelors of technical disciplines, and are a set of methods, forms and measures, united by a single goal and aimed at achieving the planned result in their aggregate. We consider the hypothetical thinking of future bachelors of technical disciplines as an integral feature of professional and personal qualities, which are manifested in hypothetically-oriented thinking, orientation to the values of safety culture, which reflect the level of motivation, knowledge, skills and experience of a specialist in the field of ensuring safety in production and preventing risks, and provide him with the readiness to make optimal choices in critical life and production situations.

The formation of hypothetical thinking of future bachelors of technical education, in our opinion, is facilitated by a number of pedagogical conditions aimed at:

1) creating an information and educational environment in order to involve students in the study of integrated meta-science and scientific educational materials that help them master knowledge in the field of risk prevention and ensuring the safety of human life as a socially important value;

2) integration of practical exercises and production practice, based on the use of a "risk-oriented task constructor" built on the principle of taxonomy (analysis, comparison, synthesis, abstraction, generalization), aimed at developing motivation for risk prevention, risk management experience, and hypothetical thinking in students;

3) involving students in the development and use of diagnostic tools for hypothetical thinking as a means of self-analysis, self-development, reflection, and self-correction.

The first pedagogical condition involves the creation of an information and educational environment that will help students master knowledge in the field of risk prevention and ensuring the safety of people's lives as a socially important value in order to involve them in the study of integrated meta-science and science educational materials.

The introduction of the first pedagogical condition into the work practice of a university teacher will, first of all, help to implement the cognitive component of hypothetical thinking, which will ensure that students acquire knowledge in the field of risk prevention and ensuring the safety of people's lives as a socially important value that forms the basis of a safety culture. In addition, this condition is implemented through the content block of the structural-functional model.

The creation of an information and educational environment is a necessary aspect of the implementation of this condition. The information and educational environment is a multifaceted, holistic, socio-psychological reality, providing a set of necessary psychological and pedagogical conditions, modern teaching technologies and software and methodological manuals, built on the basis of modern information technologies that provide support for cognitive activity and access to

information resources. The information and educational environment includes a number of components: 1) the spatial-subject component, which includes the building, premises and their condition, technical educational aids, information systems, educational literature, that is, everything that surrounds the subjects of the environment; 2) the social component is the subject composition of the educational environment, the psychological and moral-emotional microclimate in the institution, the atmosphere of cooperation, the traditions, image of the educational institution, the formation of professional interests and value orientations in subjects, etc.; 3) the communicative component is a systematic relationship between the social component and the external environment, enterprises where students conduct their internships, employers, and other educational organizations. The effective use of these relationships and resources helps to develop the professional and personal qualities of students.

The information and educational environment is aimed at involving students in the study and assimilation of knowledge in the field of risk prevention and ensuring human life safety as a socially important value. In particular, this is ensured by organizing and introducing integrated meta-scientific and scientific educational materials into the educational process.

As is known, integration means the integration of certain elements (parts) into a whole, their mutual penetration. Integration is always aimed at development. The principles of integrated education are aimed, first of all, at developing students' thinking, forming a holistic picture of the world, developing relevant personal, meta-scientific and scientific educational results, and forming a holistic personality. Scientific integration implies the unification of material from two or more disciplines based on solving a specific problem, but such integration can also be carried out within the framework of one discipline. In our case, integration is carried out based on knowledge in the field of risk prevention and ensuring human life safety.

One of the main concepts used in the modules is "safety culture". The concept of "safety culture" was first introduced in 1986 by the International Atomic Energy Agency (IAEA) in the process of studying the causes and consequences of the Chernobyl accident, where safety culture is understood as "a set of characteristics of the activities of organizations and individuals that determine the highest priority given to the safety issues of a nuclear power plant, based on their importance".

In foreign studies, safety culture is considered from the perspective of corporate culture: "a strong safety culture" is a set of internal values and priorities that lead to maximum work efficiency, on the other hand, "a weak safety culture" is one that does not correspond to the strategy and goals of the enterprise, but instead conflicts that hinder activity or innovation; culture is a reflection of human capital, and human capital, like any other, is a corporate resource.

British researcher Nick Pidgeon defines safety culture as a coherent system of knowledge by which a particular person or group of people perceives the dangers in the world. Safety culture is created and repeated as its participants accumulate natural, clear, and unconditional behavioral responses that constitute a specific version of risk, danger, and safety. The core of a safety culture within an organization, whether it is a company or a government, is the clear rules and standards that govern safety issues.

A.A. Rudenko and N.P. Vasilenko reveal the essential meanings of the concepts of "value", "value orientation" and show the hierarchy of these meanings:

- "value - the importance, significance, usefulness, usefulness of something;
- values - as standards and principles that a certain group of people accept for themselves;

- values guide the relationships that arise in people's behavior;
- the system of values plays the role of everyday guidelines in a person's professional and social reality, determines his various practical relationships to surrounding objects and phenomena;
- value orientation - a person's selective attitude to material and spiritual values, a system of attitudes, beliefs, preferences expressed in his behavior";
- "value orientations are the most important component of the personality structure, including motivational, relational, cognitive, emotional and evaluative components" [4, 121-b].

I.G. Dolinina, in studying this problem, introduces the concept of "values of safety culture", complements them with content, focusing on two classes of values identified by M. Rokich: terminal - the belief that the ultimate goal of individual existence is worth striving for; instrumental - the belief that a certain course of action or personal characteristic is preferable in any situation, which are traditionally divided into values-goals and values-means. In this case, the value directions of safety culture were defined by the scientist as the principle of the methodological direction of vocational education. The following can be included in the terminal values-goals of safety culture: preservation of life and health; interesting work, skill; social interaction; civic responsibility, observance of the rights and obligations of a citizen; environmental safety, preservation of natural resources; responsibility for production results; safety of the technosphere and human life; freedom (independence in making production decisions to ensure safety and prevent risks); safety of others (other people, the whole nation, all of humanity).

Values-goals are determined by instrumental values - means, norms and rules of professional activity, which include: orderliness (attention to detail, order in organizing workplaces and production issues); good manners (good behavior); high standards (high standards for life and high aspirations); cheerfulness (sense of humor); diligence (discipline); independence (ability to act independently and decisively); intolerance of shortcomings in oneself and others; education (breadth of knowledge, high general culture); responsibility (sense of duty, ability to keep one's word); rationality (ability to think rationally and logically, make thoughtful, rational decisions); self-control (moderation, self-discipline); courage in defending one's thoughts and views; strong will (the ability to stand by one's word, not to give up in the face of difficulties); tolerance (the ability to forgive others' mistakes and errors in relation to their views and opinions); broad-mindedness (the ability to understand someone else's point of view, respect other tastes, customs, and traditions); honesty (truthfulness, sincerity); efficiency in work (hard work, productivity at work); sensitivity (caring), willingness to communicate, tolerance.

The high level of injuries and deaths among the population in the context of socio-economic tension in society, moral and physical obsolescence of production assets and equipment, deterioration of the environmental situation, and the decline of the culture of society in general indicate the insufficient level of measures to form a value orientation towards a culture of safety in Uzbekistan.

On the one hand, the high number of human deaths in peacetime, on the other hand, the significant increase in the number and scale of existing and hitherto unknown global threats, are leading society to realize the need to improve the culture of safety on the basis of appropriate scientific support, taking into account regulatory, legal, organizational, technical and educational opportunities.

The number of deaths and disabilities of the population can and must be reduced, most importantly, through changing people's consciousness, developing the values of a culture of safety, and taking the necessary measures to identify, assess, forecast and prevent possible risks to a person in the

professional sphere.

From the point of view of the aforementioned Nick Pidgeon, safety culture is "... the result of education and upbringing, which is a complex description of the system of universal human and civic values, formed as a hypothetical mindset, acquired knowledge and mastered skills in ensuring safety, solid skills for acting in dangerous situations in the professional, natural and domestic spheres, and an imperative of behavior" [5, 171-b].

Consequently, the formation of a safety culture is a process of education and upbringing, which represents the organized and controlled development of a person in a safe manner, oriented towards the values of a safety culture, and is the basis for the process of forming hypothetical thinking. Thus, the implementation of the first pedagogical condition is achieved by enriching the content of academic subjects related to the formation of hypothetical thinking with integrated meta-science and science educational materials that contribute to the formation of the necessary knowledge in students about sources of risk, factors affecting the level of risk, modern methods of identification and assessment, monitoring and forecasting, and risk reduction and prevention in the relevant field.

Conclusion

Thus, the set of pedagogical conditions that we presented and subsequently implemented helped to achieve the intended result - the transition to a high level of formation of hypothetical thinking in future bachelors of technical directions:

1. The theoretical analysis carried out in the first chapter of the study confirmed the relevance of the research problem; formulated the initial content of the study; identified and demonstrated contradictions at three stages; made it possible to understand the need to develop a set of pedagogical conditions and a structural-functional model for the formation of hypothetical thinking in future bachelors of technical directions of education as a means of organizing and implementing this study.

2. The results of scientific research on the problem under study, the analysis of regulatory documents, and the set of components of professional training made it possible to clarify the content of the main concept of the study.

REFERENCES

1. Васюкова Е.Е. Уровни развития познавательной потребности и их проявление в мышлении. // Вопросы психологии. №3. - 1998. - С. 91 – 103.
2. Дернер Д. Логика неудачи: Стратегическое мышление в сложных ситуациях. М.: Смысл, 1997. - 243 с.
3. Дусавицкий А.К. Дважды два равно икс. М.: Инфолайн, 1995. - 173 с.
4. Дьюи Д.Психология и педагогика мышления.М.:Совершенство,1997.-204 с.
5. Жалдак Н.Н. Обучение логичности. Белгород: Везелица, 1998. - 116 с.
6. Gayratovich, E. N. (2019). USING VISUAL PROGRAM TECHNOLOGY METHODS IN ENGINEERING EDUCATION. European Journal of Research and Reflection in Educational Sciences Vol, 7(10).
7. Gayratovich, E. N. (2021). SPECIFIC ASPECTS OF EDUCATIONAL MATERIAL DEMONSTRATION ON THE BASIS OF VISUAL TECHNOLOGIES. International Engineering Journal For Research & Development, 6, 3-3.
8. G'ayratovich, E. N. (2022). It Is A Modern Educational Model Based On The Integration Of

Knowledge. Eurasian Scientific Herald, 5, 52-55.

9. G'ayratovich, E. N. (2022). The Theory of the Use of Cloud Technologies in the Implementation of Hierarchical Preparation of Engineers. Eurasian Research Bulletin, 7, 18-21.

10. Gayratovich, E. N., & Yuldashevna, T. O. (2020). Use of visualized electronic textbooks to increase the effectiveness of teaching foreign languages. European Journal of Research and Reflection in Educational Sciences Vol, 8, 12.

11. Ergashev, N. (2020). Didactic fundamentals of electronic books visualization. An International Multidisciplinary Research Journal.

12. Ergashev, N. (2020). Using the capabilities of modern programming languages in solving problems of technical specialties. An International Multidisciplinary Research Journal.

13. Ergashev, N. (2022, May). FEATURES OF MULTI-STAGE TRAINING OF TEACHERS'CONTENT TO PROFESSIONAL ACTIVITIES USING CLOUD TECHNOLOGY IN THE CONDITIONS OF DIGITAL EDUCATION. In International Conference on Problems of Improving Education and Science (Vol. 1, No. 02).

14. Ergashev, N. (2022, May). THEORETICAL STAFF TRAINING USING CLOUD TECHNOLOGY IN CONTINUING EDUCATION. In International Conference on Problems of Improving Education and Science (Vol. 1, No. 02).

15. Ergashev, N. (2022, May). PROBLEMS OF USING DIGITAL EDUCATION IN PEDAGOGICAL THEORY AND PRACTICE. In International Conference on Problems of Improving Education and Science (Vol. 1, No. 02).

16. Ergashev, N. (2022, May). THEORY OF TRAINING OF PEDAGOGICAL PERSONNEL IN HIGHER EDUCATION USING CLOUD TECHNOLOGIES IN THE CONDITIONS OF DIGITAL EDUCATION. In International Conference on Problems of Improving Education and Science (Vol. 1, No. 02).

17. Ergashev, N. (2022, May). PROBLEMS OF DIGITAL EDUCATION IN PEDAGOGICAL THEORY AND PRACTICE. In International Conference on Problems of Improving Education and Science (Vol. 1, No. 02).

18. G'ayratovich, E. N. (2022). The Problem of Training Future Engineer Personnel on the Basis of Cloud Technology in Technical Specialties of Higher Education. Eurasian Scientific Herald, 13, 1-4.

19. Gayratovich, E. N., & Jovliyevich, K.B.(2023).Theory and Methodology of Software Modeling Using the Web Platform.Eurasian Scientific Herald,16,59-63.

20. Ergashev, N. (2023). Methods of teaching parallel programming methods in higher education. Electron Library Karshi EEI, 1(01). Retrieved from https://ojs.qmii.uz/index.php/el/article/view/271

21. ERGASHEV, N. THE ANALYSIS OF THE USE OF CLASSES IN C++ VISUAL PROGRAMMING IN SOLVING THE SPECIALTY ISSUES OF TECHNICAL SPECIALTIES. http://science. nuu. uz/uzmu. php.

22. Gayratovich, Ergashev Nuriddin. "A MODEL OF THE STRUCTURAL STRUCTURE OF PEDAGOGICAL STRUCTURING OF EDUCATION IN THE CONTEXT OF DIGITAL TECHNOLOGIES." American Journal of Pedagogical and Educational Research 13 (2023): 64-69.

23. Shodiyev Rizamat Davronovich, and Ergashev Nuriddin Gayratovich. "ANALYSIS OF EXISTING RISKS AND METHODS OF COMBATING THEM IN CLOUD TECHNOLOGIES". American Journal of Pedagogical and Educational Research, vol. 18, Nov. 2023, pp. 190-8, https://www.americanjournal.org/ index.php/ajper/article/view/1522.