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THE SCIENTIFIC AND METHODOLOGICAL RECOMMENDATIONS FOR THE APPLICATION OF SITUATIONAL MODELING IN THE FUTURE GEOLOGISTS' PROFESSIONAL PREPARATION

Taking into account the strategic importance of the mining industry for Ukraine, the author proposes to provide the professional training of qualified personnel for the industry – the future geologists by using the situational modeling (creating the real and realistic possible production of situations for their analysis for the formation the students' general and professional competencies). The methods of situational modeling include the business games, case studies and situational tasks. The definitions of all methods also were given. Such organization of the educational process activates the cognitive activity of students, develops their personality, induces an independent choice and finds the optimal way of the problem solving. So the article gives the methodical recommendations on the using of situational modeling methods in the process of future geologist's professional training. It was divided into three pedagogical conditions compliance due to which it is important to form the positive influence of the considered methods on the preparation of future geologists. Also it was described three steps which should be done for implementation of these methods: creation of the appropriate educational material; the organization of the independent and class work of students on tasks on the basis of situational modeling; an analysis of the students' work.

The recommendations for business games, cases and creation of situational tasks are given. They include the differences between these methods and different aims of educational process. Also, the organizational component of conducting the lessons with use of situational modeling methods was considered. As an important part of educational process the methodology of evaluating the students' activity (independent preparation and work in class) was presented. There are examples of student's independent and class work organization and its evaluation for all methods of situational modeling.

Keywords: *a future geologist, the professional preparation, a method of situational modeling , geological education.*

Figures 2. Ref. 6.

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НАУКОВО-МЕТОДИЧНІ РЕКОМЕНДАЦІЇ ЩОДО ЗАСТОСУВАННЯ СИТУАТИВНОГО МОДЕЛЮВАННЯ В ПРОФЕСІЙНІЙ ПІДГОТОВЦІ МАЙБУТНІХ ГЕОЛОГІВ

У статті розглянуто доцільність використання ситуативного моделювання в професійній підготовці майбутніх геологів. Визначено основні педагогічні умови, дотримання яких сприяє позитивному впливу означених методів на якість освітнього процесу. Подано науково-методичні рекомендації викладачам для створення відповідних завдань, організації позааудиторної та аудиторної роботи студентів. Особливу увагу акцентовано на методиці оцінювання роботи студентів над завданнями із застосуванням кожного із методів ситуативного моделювання.

Ключові слова: *майбутні геологи, професійна підготовка, методи ситуативного моделювання, геологічна освіта.*

Formulation of the problem. Focusing on the problem of professional training of geological specialization students – future geologists is connected with the tasks of the National Program for the Development of the Mineral Resources of Ukraine, which identifies the need for "transformation of Ukraine into a state that is an important component of the world mineral resource complex in terms of strategic use important minerals and the scale of attracting foreign investment" [1]. As one of ways of this task solution scientists offer to use significant investment funds for the development of the fuel and energy industry [4].

However, taking into account the strategic importance of the mining industry for Ukraine, achieving the planned goals is possible, in our view, also buy the providing the professional training of qualified personnel for the industry.

In order to solve the problem we propose to train future geologists with the use of situational modeling methods which are based on the reproduction of real and realistic possible production situations for their analysis for the formation students' general and professional competencies.

Let's note that the analysis of production situations in the process of professional training allows students to get acquainted with the realities of work on the specialty, production conditions, and specifics of

professional relations, which are the important components of the student's readiness for future professional activities. Such organization of the educational process activates the cognitive activity of students, develops their personality, induces an independent choice and finds the optimal way of the problem solving.

Analysis of literature. Situational modeling as a pedagogical category was discribed in the works of S. Goncharov, A. Kashinskaya, Yu. Kobyuk, N. Perhailo, V. Perminova, M. Rostoka, I. Sitka, O. Shenderuk and others. N. Yermilova and O. Filipova made a scientific contribution to the simulation of problem situations and situations of professional activity. The study of problem – situational learning was carried out in the work of O. Nazarkin, interactive learning – in the works of I. Abramova, O. Yelnikova, L. Pirozhenko, O. Pometun, T. Serdyuk and others.

The aim of article. However, the lack of research about the use of situational modeling techniques in the training of future geologists proves the importance of developing methodological recommendations for their implementation, which is the purpose of this article.

Presentation of the main material. The methods of situational modeling include business games, case studies and situational tasks. Business game (role-playing game) – a method of simulating various conditions of professional activity (including extreme) by the search for new ways to implement it, that is, imitating various aspects of human activity and social interaction [6, 26].

Case method is "a method of training in which students and instructors take part in direct debates on business cases. Examples of such problems are usually prepared in writing as a reflection of current business problems, studied by students and discussed on their own, which provides the basis for joint discussions and discussions in the classroom under the guidance of a teacher" [6, 71].

Situational tasks – a specialized educational method, through which the student receives a product of the study, the essence of which is, first of all, in the acquisition of subjective new professional and significant knowledge and leading methods of professional activity of various degrees of universality, interpersonal communication skills, initial experience of practical methodical activity [5, 350].

Unfortunately, cases and situational tasks as concepts have no clear delineation in pedagogical literature. It is connected with the fact that from English word "case" is translated as "situation", and both of methods are based on a certain problem situation that needs to be solved.

Case method was established by foreign teachers and successfully came into national education with the researches of international experience of professional training. At the same time situational tasks (especially pedagogical) were independently developed and implemented in the practice of specialist's training by scientists. So, the identity of the methods is associated with the difficulties of translation and adaptation of foreign language terms in national practice.

However, a profound analysis of these concepts allows distinguishing their essential difference. Situational task is characterized by incomplete information, the student has only certain initial data and his task is to determine how the situation will develop in the future. But case has initial and at the same time final data and the task is to analyze the entire structure of the situation, to identify causal relationships and outline ways to prevent such situation in the future. That is, each of the considered methods is intended to solve various tasks of vocational training. So, situational modeling is a set of interactive teaching methods, the choice of which depends on the purpose and specific classes of educational material.

The stages of the situational modeling implementation in the process of future geologists training are:

1) creation the appropriate educational material;

2) organization the independent and class work of students on tasks on the basis of situational modeling;

3) analysis of students' work.

It is clear that depending on the chosen method – business game, case method or situational tasks – the recommendations for their application will be different. However, let's determine the following pedagogical conditions as the general requirements for their use in the preparation of future geologists [3]:

1) the correspondence of the chosen methods of situational modeling with the nature of the educational material, which means the clear separation of geological disciplines, within which the methods of situational modeling will be appropriate and will contribute to the improvement of the quality of professional training;

2) the motivation of teachers to use business games, cases and situational tasks, that means teachers' awareness of situational modeling methods as effective in future geologists training process;

3) the readiness of teachers and students to work on tasks based on situational modeling.

The application of the business game has two components: methodical (teacher training for its use) and organizational (students preparation and conducting the game itself). Compliance with each of

them ensures the effectiveness of the game in the process of future geologists training.

The training of a teacher to use business games begins with familiarization with the theoretical material regarding the types of business games, the essence of the business game as a method of situational modeling and the principles of its application. After choosing the kind of game you need to find the material for game creation, and to develop a script and rules of it.

At the final stage of preparation, teacher develops some information material (if it is needed) – graphs, tables, description of the situation on the cards, etc.

The algorithm of work on a case begins with its creation by teacher. This is a creative process that has not just methodological but also scientific and research components.

An important requirement for the structure and content of any case is the presence of a short introduction (for example, the story of organization in which there was a certain problem situation, time and place of its occurrence). In this way, the case gets a certain context that allows students to feel emotionally engaged in professional activities. The main part of the casework is a description of a specific production situation, which is based on certain contradictions, problems that should be solved. General information may be submitted in full or in part to encourage the student to seek additional information. At the same time, cases can be supplemented by various materials such as charts, tables, reports (for large cases), so student can see a clear connection of his activity with the chosen specialty. The final element in the structure of case is a list of questions to which the student must give an answer after processing the material.

Since the case is a situation that has already happened, it is important to use the past time of verbs. However, the information in case should be modern: the moral obsolete of events, phenomena, technologies reduces the value of the case and the degree of student's interest.

It should be noticed that case should be as realistic; the described situation should be logical and possible in the conditions of production. Despite the fact that this is just a method of learning, and it has, above all, a didactic purpose, its realism should not cause doubt.

If the case is too large to be processed for one lesson, it is advisable to break it into a few more simple cases, or to note at the beginning of lesson that during one class only a part of the case's questions must be solved. It is not recommended to interrupt the discussion in the case and leave unfinished performances of the student's groups after the end of the class, transferring them to the next lesson.

National researchers distinguish four stages within game teaching [2]:

1) orientation (announcement of the subject, students familiarization with the rules of the game and its brief review);

2) preparation for the game (explanation of the scenario, defining tasks, roles and ways of problem solving);

3) the main part (gameplay);

4) analysis of the game and its discussion.

However, this algorithm describes the organization of student activities directly in the class. In our opinion, it is possible to increase the efficiency of the work by the preliminary independent students training before the lesson.

So, the day before, it's worth to tell students about conducting a business game within next lesson. For effective work in the class teacher emphasizes the need for students to master or repeat some theoretical material on their own at home. Also teacher can pay attention to the training material on the theme of the future game, which was presented in the previous lesson. Independent student's home preparation may include not only repetition of the lecture material, but also the preparation of additional materials: abstracts, reports, etc.

Organization of student work on case studies may have various forms. They can process case independently before the lesson or receive it directly in the classroom. Independent preprocessing is required for cases which have educational material which have not been previously provided by the teacher at lectures, or huge difficult cases, the initial analysis of which in the class takes too much time. Work on the task can be individual or group (optimally – in small groups of 4 – 6 people). Before work in groups it is worth to check students' knowledge through a test or oral questionnaire to determine the level of comprehension of the teaching material and if students have not enough knowledge it is appropriate to fill the gaps in knowledge through a short lecture. Then students familiarize themselves with the materials of the case.

Based on the analysis of the case students should create specific draft with a structured response, briefly listing the main ideas of problem solution. Also teacher can add some extra material into the case and it will help students in their work. Among such "evidence" can be printed materials of enterprises and organizations, statistical data, external reports, slideshows or video materials, etc. (depending on the case contents). The report of each group should contain three key points: the problem (something what is wrong), alternative options for it solution (the student's actions in the given situation) and recommendations (how to avoid this in the future).

At the next stage, each group (team) nominates

the delegate, who presents the report on the results of the case study. At this time, other teams opponent and evaluate the proposals of the first team. If it is necessary, they ask some questions to the speaker, which can be answered not only by the delegate, but also by other members of the group. The discussion continues until each team speaks with a report.

The success of each team report depends on all its members. An important part of it is the active participation in discussion and advocacy their own opinion. However, during the public discussion student may feel stress. So the instructor (teacher) should provide a comfortable and friendly atmosphere in the audience as much as it is possible. Also, it must be remembered that the speaker's competences do not automatically make the student an effective participant in the discussion. The student's contribution into the team success involves his responsibility for communicating his ideas to others and accepting critique of ideas by other team members. The teacher is the coordinator in the discussion: he directs the discussion and may act as a critic to intensify the discussion and to make students to seek ways to solve the problem presented in the case. If discussion is "deadlocked", the instructor can ask questions for everyone with the aim to help students to find the answer to the question which caused a pause in the discussion.

The final stage is summing up: the teacher analyzes the degree of validity and logic of the solutions proposed by teams, the activity of their participants and the quality of the whole discussion. Students can be invited to this process.

Large difficult cases can be supplemented by a written report, which should be written by each team after processing the case at the stage of independent non-auditing work or after discussion in small groups in the class. This document can be used as a reference for a collective discussion. The author of the report, as a rule, is a whole group, but also it may be the sole person of each member. An individual report is particularly relevant when the student suggests and justifies his own solution to a problem that has not been supported by other group members. The volume of written analysis should be up to 40% of the total volume of the case and can be supplemented by various calculations and graphic materials.

The analysis of the concept "situational task" which has been carried out in the beginning of the article let us to use the same algorithm of organizing the students work as we use with case method. However, it should be noted that while using situational tasks, the element of discussion and collective work in the audience is key point, so it is necessary to involve all student into the active participation in discussion. Unlike case studies, work on situational tasks, as a rule, does not require a report. Compared to the case, the situational task is easier to handle, so it does not require written analysis. As an exception we can call tasks, the solution of which involves making calculations, where the written statement of the course of the decision illustrates student's knowledge and is obligatory. At the same time, if situational task serves as a current or final control task, some written statement of the progress of the situational problem solution is justified.

The distribution of points that a student can get for work on tasks based on situational modeling is presented below.

But if report is not planed as a result of work on case the last 20% of the mark should be divided between the first two activities.

However, a significant disadvantage of this evaluation system is the inability to identify the amount of personal contribution to work of each team member. Because of this, we recommend to teacher during the evaluation to listen to the opinion of the team members regarding the contribution of everyone to the overall result.

The evaluation of work on a situational task depends, first of all, on its type. For tasks that should not be discussed, but require settlement, the correctness of the decision is the criterion for the evaluation. At the same time, the necessity to analyze, to search for extra information for task is an additional criterion.

In tasks which contain the discussion it is advisable to take into account the student's activity, the reasonableness of his arguments, and the ability to conduct a discussion.

Evaluation of situational tasks which involve written analysis or compilation of a report, such criteria as the logic of the presentation of the material, the ability to provide written arguments and reasoning, observance of the scientific style, etc. have a profound effect on the final mark.

Conclusions and perspectives of further research. So the article gives methodical recommendations on the use of situational modeling methods in the future geologists training. It was divided three pedagogical conditions compliance with which is important to the positive influence of the considered methods on the preparation of future geologists.

The recommendations for creation of business games, cases and situational tasks are given. Also, the organizational component of conducting lessons with use situational modeling methods was considered and a possible methodology for evaluating students' activity was presented.

This article does not cover all aspects of this issue, therefore, in further research we plan to elaborate in

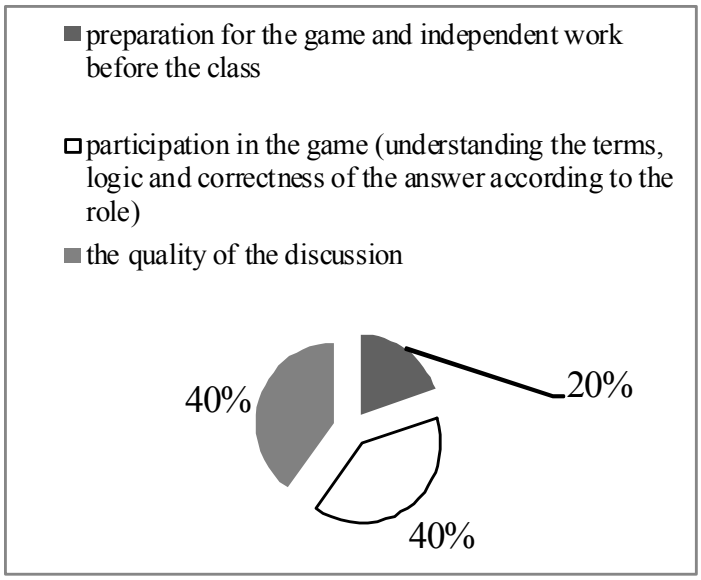

Figure 1. Distribution of points that a student can get for working on a business game

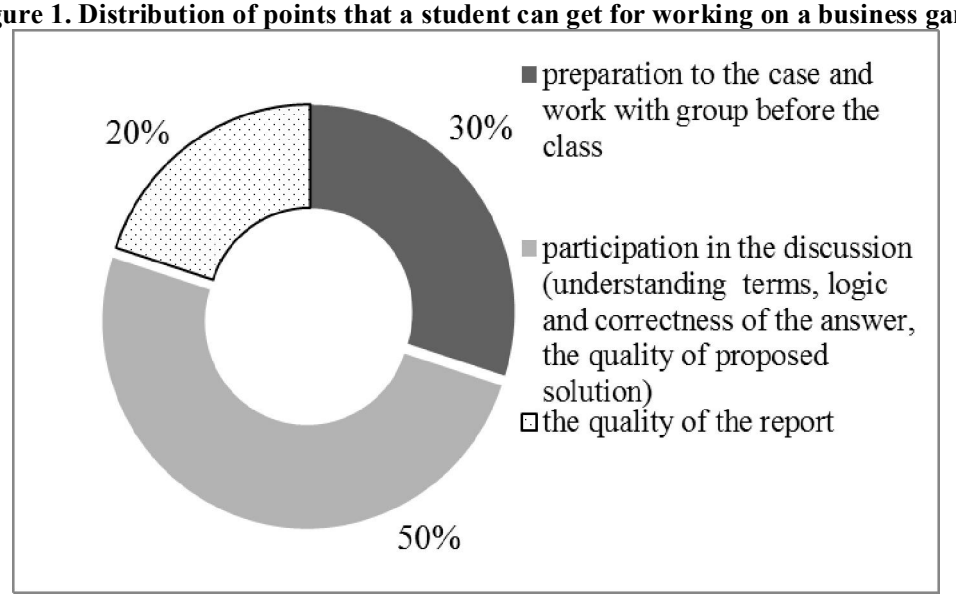

Figure 2. Distribution of points that a student can get for working on a case

more detail (on examples) the methodology of the use of situational modeling in the professional preparation of geologists.

ЛІТЕРАТУРА

1. Закон України "Про затвердження Загальнодержавної програми розвитку мінерально-сировинної бази України на період до 2030 року" [Електронний ресурс]. – Режим доступу до вид.: http: //zakon3.rada.gov.ua/laws/show/3268-17.

2. Кобюк Ю.М. Технології ситуативного моделювання у професійній підготовці майбутніх учителів / Ю.М.Кобюк // Педагогічні науки: теорія, історія, інноваційні технології: науковий журнал. – Суми: СумДПУ ім. А. С. Макаренка, 2015. – № 3 (47). – С. 359 – 364.

3. Kuzko M. Future geologists' professional training as a pedagogical problem / M. Kuzko // Педагогічні науки: теорія, історія, інноваційні технології. – №7 (71). – 2017. – P. 79 – 90.

4. Мадзігон В. Вачевський М. Промисловий маркетинг в геології, буріння свердловин і добування нафти і газу зі свердловини / В. Мадзігон, М. Вачевський // Молодь і ринок. – № 2 (85). – 2012. – С. 6 – 13.

5. Москаленко О. А., Москаленко Ю. Д., Коваленко О. В. Ситуаційні задачі як продуктивна основа сучасної системи фахового становлення майбутнього вчителя математики / О. А. Москаленко, Ю. Д. Москаленко, О. В. Коваленко // Педагогічні науки: теорія, історія, інноваційні технології. – №2 (56). – 2012. – С. 347 – 356.

6. Юрко І.В. Використання тренінгових технологій навчання у підготовці фахівців для підприємницької та управлінської діяльності / Юрко І.В.,

Шимановська-Діаніч Л.М., Гунченко М.В.; монографія. – Полтава: РВВ ПУСКУ, 2008. – 161 с.

REFERENCES

1. Zakon Ukrainy (2010). *"Pro zatverdzhennia Zahalnoderzhavnoi prohramy rozvytku mineralno-syrovynnoi bazy Ukrainy na period do 2030 roku"* [On Approval of the National Program for the Development of the Mineral Resources of Ukraine until 2030]. [Electronic resource]. Available at: http: // zakon3.rada.gov.ua/laws/show/3268-17.[in Ukrainian].

2. Kobiuk, Yu.M. (2015). *Tekhnolohii sytuatyvnoho modeliuvannia u profesiinii pidhotovtsi maibutnikh uchyteliv* [Situational modeling technologies in the training of future teachers]. *Pedagogical Sciences: Theory, History, Innovative Technologies: Scientific Journal*. Sumy: SumMPU. A. S. Makarenko, no. 3 (47), pp. 359 – 364. [in Ukrainian].

3. Kuzko, M. (2017). Future geologists' professional training as a pedagogical problem. *Pedagogical sciences: theory, history, innovative technologies*. Sumy: SumMPU. A. S. Makarenko, no. 7 (71), pp. 79 – 90.[in Ukrainian].

4. Madzigon, V. & Vachevsky, M. (2012). *Promyslovyi marketynh v heolohii, burinnia sverdlovyn i dobuvannia nafty i hazu zi sverdlovyny* [Industrial Marketing in Geology, Well Drilling and Extraction of Oil and Gas from a Well]. *Youth and Market,* no. 2 (85), pp. 6 – 13. [in Ukrainian].

5. Moskalenko, O. A., Moskalenko, Yu. D. & Kovalenko, O. V. (2012*). Sytuatsiini zadachi yak produktyvna osnova suchasnoi systemy fakhovoho stanovlennia maibutnoho vchytelia matematyky* [Situational problems as a productive basis of the modern system of professional formation of the future teacher of mathematics]. *Pedagogical Science: Theory, History, Innovative Technologies*. Sumy: Sum MPU. A. S. Makarenko, no. 2 (56), pp. 347–356. [in Ukrainian].

6. Yurko, I.V. (2008). *Vykorystannia treninhovykh tekhnolohii navchannia u pidhotovtsi fakhivtsiv dlia pidpryiemnytskoi ta upravlinskoi diialnosti* [Use of training technology training in the training of specialists for entrepreneurial and managerial activities]. Poltava: RVV START, 161 p. [in Ukrainian].

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ТЕНДЕНЦІЇ РОЗВИТКУ СУЧАСНОЇ МУЗИЧНО-ПЕДАГОГІЧНОЇ ОСВІТИ

У статті проаналізовано основні теоретичні аспекти розвитку музично-педагогічної освіти на сучасному етапі. Виокремлено основні стратегічні освітні напрями котрі істотно впливають на підвищення якості освіти. Зроблено акцент на розвиток професійної майстерності вчителя музичного мистецтва. Висвітлено комплекс знань, умінь та навичок якими повинен володіти сучасний педагог-музикант. Складність професійної діяльності педагога-музиканта полягає в тому, що вона вимагає від вчителя знань, умінь та навичок у загально-педагогічній сфері, музично-педагогічній та виконавській.

Ключові слова: *музично-педагогічна освіта, педагог-музикант, освітні технології, музичне мистецтво.*

Літ. 5.

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TRENDS OF DEVELOPMENT OF MODERN MUSIC AND PEDAGOGICAL EDUCATION

The article analyzes the main theoretical aspects of the development of musical-pedagogical education at the present stage. The main strategic educational directions that significantly influence the quality of education are highlighted. The emphasis is on the development of the professional skill of the teacher of musical art. The complex of knowledge, abilities and skills that a modern music teacher must possess is highlighted. The complexity of the professional activity of a teacher-musician is that it requires a teacher of knowledge, skills and abilities in the general-pedagogical field, musical-pedagogical and performing. In the today's educational environment, the training of future teachers of musical art is aimed at the formation and development of professionals, capable to perform the artistic and creative activities. By actively using the latest technologies of teaching, the student improves the search, creative activity, ascends to a new level of knowledge and activates cognitive activity, independence, interest in their work. The role of musical art in shaping the spirituality of the younger generation is also defined.

Keywords: *music-pedagogical education, a teacher of music, the educational technologies, musical art.*

Постановка проблеми. Мистецька спадщина, акумулюючи емоційно-естетичний досвід поколінь, втілює і передає ціннісне ставлення до світу крізь призму етнонаціональної специфіки, тому вона є ефективним засобом виховання моральності,