

O. Semernia, D.Sc., Docent

e-mail: semerniaoksana@gmail.com

Kamianets-Podilskyi Ivan Ohiienko National University
Ohiienko str., 61, Kamianets-Podilskyi, 32301, Ukraine

FUTURE SPECIALIST AS MANAGER AND FACILITATOR OF THE EDUCATIONAL PROCESS AS NATURAL AND MATHEMATICAL DIRECTION OF PREPARATION

Purpose. The article examines similarity and differences in the specialist's functions such as a manager and a moderator on the example of a natural and mathematical direction specialist. The urgency of the problem of formation of the ecological world outlook of future specialists in the natural and mathematical direction of training considered and analyzed. **Methodology.** The possible variants of formation of professional competences of the future specialist of the natural and mathematical profile through the models of the manager and moderator of author's styles of professional activity showed and presented. The content and the methodology of binary management of professional training of future specialists of the natural sciences and mathematics direction through the application of educational, work programs, special professional tasks for the formation of the competences of students of environmentalists and physics students is revealed. The procedure and the specification of the methodology of forming effective teaching of managerial influences described installation, involvement into action, suggestion of attitudes. The specific tasks for the current testing of students' knowledge in a natural and mathematical direction are being analyzed. **Results.** Specialist is the manager and the facilitator of the educational process. The specialist is the ideologue of the ecological picture of the world. **Originality and practical value.** In the changing nature of the educational process, the specialist acts as a multi-functional personality. **Conclusion.** The application of effective training of future specialists in the field of natural and mathematical training will allow the formation of an ecological worldview as one of the priority directions of the strategy of sustainable development in Ukraine. The specialist is the interpreter of innovation and information technologies of the present and future society.

Key words: manager, moderator, natural and mathematical direction of preparation, ecological world outlook, author's style of professional activity.

1. Introduction. There are constant changes in the learning process such as such as changes in structure, content, concepts, approaches etc. Therefore, future specialist of a natural and mathematical direction of preparation must be able to adapt to these changes. While studying in higher educational establishments students are laying the foundation skills to adapt to changes in educational activities. Such features are called skills competencies and activities to identify these competences [3].

Today a specialist of a natural and mathematical direction of preparation is serving as a manager in education and, simultaneously, is a moderator of student competencies.

2. Problem Formulations. Let us define the basic functions of a specialist-manager as well as the basic functions of a specialist-moderator. Let us compare and summarize them. The functions of the specialist-manager are the following: administrative, organizational, communicational, didactic, educational, controlling, environmental, research-orientated, structural and technological [2; 3].

The functions of the specialist-moderator may be described in the following way: specialist-manager, specialist plays the role of a journalist, showmen, interviewer, commentator, columnist, specialist shares the experience (not theory), the function of looks and diction.

Thus, the functions of the specialist-manager and the specialist-moderator complement one another and create a competent modern specialist [3].

Specialist acts as ideologue and carries on ideological culture of the nation as a natural and mathematical direction of preparation. He builds student's individuality while specialist of a natural and mathematical direction of preparation.

Specialist of a natural and mathematical direction of preparation as an instructor detects professional knowledge the basics of nature interrelationships, the laws of nature. Moreover, it can simulate the ideology of thinking of his professional knowledge towards the development of the scientific picture of the world outlook. These opportunities are developing a specialist of a natural and mathematical direction. Therefore, a natural and mathematical direction specialist is the moderator and the manager.

Specialist-manager controls and organizes cognitive activity of his detects professional knowledge; the specialist is able to teach these moderators expertise's to pupils in an accessible way. Functions of the manager and moderator for a specialist of a natural and mathematical direction here are complementary. This allows you to control the quality of him knowledge and it allows you to simulate the image of a competent of them. A natural and mathematical direction specialist like to explore the world of nature since birth. The main objective for a specialist of a natural and mathematical direction is to improve the quality of professional curiosity. This can be done in the following way: Specialist of a natural and mathematical direction is aware of the educational, developmental purposes of teaching. The learning process of students produces a result, when it is under the control. Monitoring of current study of professional knowledge results gives error statistics and error correction capabilities. While teaching a natural and mathematical direction specialist controls the learning process and can simulate specific intelligence of professional.

Therefore, the preparation of future specialists of a natural and mathematical direction is tightly connected with mastering the features of the manager and moderator.

3. Problem Solutions. Let us analyze some examples of tasks for future specialists a natural and mathematical direction in developing the features of a manager. For example, tasks for future teacher of Physics and teacher of Ecology [1]. The tasks are:

1. Prepare a Physics or an Ecology lesson script on the topic «Preemptive power. Principle of Archimedes» or on the topic «Concept of sustainable development». Conduct a Physics or an Ecology lesson. Analyze the lesson.
2. Prepare outline references on the topic «Gravity» for pupils. Explain the theoretical basis for the topic.
3. Make a physical or an ecology device for demonstration of mechanical motion. Apply it while explaining new material.

Demonstrate problem for future specialists-moderators [1].

1. Prepare a demonstration lesson on Physics or an Ecology with a computer presentation on the topic «Nuclear Reactor» or on the topic «Concept of sustainable development». Conduct the lesson. Analyze it.
2. Write an article on the individual subject and publish it in a collection of scientific papers. Discuss the main theses of the article.
3. Organize extracurricular educational event on Physics or an Ecology on the topic «Inertia Trial Case» or on the topic «Concept of sustainable development». Involve the present students' audience into the event. Run the 'trial'. Analyze and evaluate the work of each student.

Consequently, the suggested tasks complement the functions of manager and add new features to the moderator. Current and systematic use of the special tasks creates develops specialists' skills of managers and moderators.

The main motif of training future specialists of a natural and mathematical direction specialist is the systematic accomplishment of professional tasks while learning specific techniques. The specialist of specific discipline identifies the level of complexity of the task and competence of a student or they are listed before the task in parentheses, like in the task below [1].

It is called 'the level of competence of future specialists of a natural and mathematical direction'. If the student accomplishes the task, his level of competence corresponds with it. If the task is not solved, then it is necessary to solve the task, which level is somewhat lower than suggested before. Only the tasks, which can be accomplished by the students, activate their cognitive activity. Therefore, the specialist conducts current monitoring of students' knowledge and knows the level of training of each of them.

For example, tasks for future teacher of Physics and teacher of Ecology. Let us compare the tasks for the different degree of awareness:

1. (degree of awareness – ability). Prepare didactic task for test certification in Physics in the first semester of the 8th grade.
2. (degree of awareness – persuasion). Prove that the reason of the body movement is the power, not its speed. Take the limits of its use like in classical mechanics.
3. (degree of awareness – skills). Solve the problem with explanations for the synthesized algorithm. Oxygen (10 g) has a pressure 0.303 MPa and its temperature is 10° C. After heating at constant

pressure oxygen occupied volume of 10 liters. Find the initial volume and the final temperature of the gas.

4. (degree of awareness – persuasion). Tell us about Concept of sustainable development in Ukraine.
5. (degree of awareness – persuasion). Tell a few words about Ecology situated in Ukraine. Why do you think so?

During the current professional activities, students learn to develop professional competence and outlook. Students learn to identify and present the results of individual projects. Students independently implement creativity and stimulate motivation to choose the natural and mathematical direction profession [3].

The strategy of a natural and mathematical direction specialist as managers and moderators of the educational process can be described by the following basic statements.

1. Determine the global goal of training future specialists of a natural and mathematical direction.
2. Develop target binary program with special subjects for training.
3. Produce didactic material in accordance with the requirements of students' awareness level.
4. Develop lectures, practical, laboratory sessions plans for the binary training program requirements.
5. Develop topics for independent and individual work of students.
6. Conduct current and topical control of cognitive activity of future a natural and mathematical direction specialists.
7. Apply and manage educational and cognitive processes.

4. Conclusions. In the changing nature of the educational process, the specialist acts as a multi-functional personality. Specialist is the manager and a facilitator of the educational process. The specialist is the ideologue of the ecological picture of the world. The specialist is the interpreter of innovation and information technologies of the present and future society.

References:

1. Semernia O. Future Physics Teacher as Manager and Facilitator on the Educational Progress [Електронний ресурс] / O. Semernia, N. Sosniskaya, J. Italo. – Режим доступу: www.IJSK.org/ijrss.
2. Семерня О.М. Методичні основи управління навчанням фізики : монографія / П.С. Атаманчук, О.М. Семерня. – Кам'янець-Подільський : Кам'янець-Подільський державний університет, інформаційно-видавничий відділ, 2005. – 196 с.
3. Семерня О.М. Основи методології дієвого навчання майбутніх учителів фізики : монографія / О.М. Семерня. – Кам'янець-Подільський: Кам'янець-Подільський національний університет імені Івана Огієнка, 2012. – 376 с.

References:

1. Semernia O. Future Physics Teacher as Manager and Facilitator on the Educational Progress [Elektronnyi resurs] / O. Semernia, N. Sosniskaya, J. Italo. – Rezhym dostupu: www.IJSK.org/ijrss.

2. Semernia O.M. *Metodychni osnovy upravlinnya navchannyam fizyky : monohraph / O.M. Semernia. – Kamianets-Podilskyi : Kamianets-Podilskyi Ivan Ohienko National University, 2005 (in Ukrainian).*
3. Semernia O.M. *Fundamentals of the Methodology of Effective Education of Future Physics Teachers : monograph / O.M. Semernia. – Kamianets-Podilskyi : Kamianets-Podilskyi Ivan Ohienko National University, 2012. (in Ukrainian).*

О. М. Семерня, д.п.н., доцент
e-mail: semerniaoksana@gmail.com
Кам'янець-Подільський національний
університет імені Івана Огієнка
вул. Огієнка, 61, м. Кам'янець-Подільський, 32301, Україна

МАЙБУТНІЙ ФАХІВЕЦЬ ЯК МЕНЕДЖЕР ТА МОДЕРАТОР З НАВЧАЛЬНОГО ПРОЦЕСУ ПРИРОДНИЧО-МАТЕМАТИЧНОГО НАПРЯМКУ

Розглянуто і проаналізовано актуальність проблеми формування екологічного світогляду майбутніх фахівців природничо-математичного напрямку підготовки. Показано і наведено можливі варіанти формування професійних компетентностей майбутнього фахівця природничо-математичного профілю через моделі менеджера і модератора та активізацію їх авторських стилів професійної діяльності. Розкрито зміст і удосконалено методичку бінарного управління професійною підготовкою майбутніх фахівців природничо-математичного напрямку через застосування навчальних, робочих програм, спеціальних професійних завдань на формування компетентностей студентів-екологів і студентів-фізиків. Описано процедуру та специфікацію методології дієвого навчання управлінськими впливами: установка, залучення до дії, навіювання ставлень. Застосування дієвого навчання майбутніх фахівців природничо-математичного напрямку підготовки дозволить сформувати екологічний світогляд як один з пріоритетних напрямів стратегії сталого розвитку в Україні.

Ключові слова: менеджер, модератор, природничо-математичний напрям підготовки, екологічний світогляд, авторський стиль професійної діяльності.

О. Н. Семерня, д.п.н., доцент
e-mail: semerniaoksana@gmail.com
Каменець-Подольський національний
університет імени Івана Огієнка
ул. Огієнка, 61, г. Каменець-Подольський, 32301, Україна

БУДУЩИЙ СПЕЦИАЛИСТ КАК МЕНЕДЖЕР И МОДЕРАТОР УЧЕБНОГО ПРОЦЕССА ЕСТЕСТВЕННО-МАТЕМАТИЧЕСКОГО НАПРАВЛЕНИЯ

Рассмотрена и проанализирована актуальность проблемы формирования экологического мировоззрения будущих специалистов естественно-математического направления подготовки. Проиллюстрированы и приведены возможные варианты формирования профессиональных компетенций будущего специалиста естественно-математического профиля. Описаны модели менеджера и модератора, с выработанными авторскими стилями их профессиональной деятельности. Раскрыто содержание и усовершенствована методика бинар-

ного управления профессиональной подготовкой будущих специалистов естественно-математического направления с помощью применения учебных, рабочих программ, специальных профессиональных задач на формирования компетентностей студентов-экологов и студентов-физиков. Описана процедура и спецификация методологии действенного обучения средствами управленческих воздействий: установка, привлечения к действию, внушение отношений. Обобщено, что применение действенного обучения для будущих специалистов естественно-математического направления подготовки, моделирует экологическое мировоззрение: одно из приоритетных направлений стратегии непрерывного развития в Украине.

Ключевые слова: менеджер, модератор, естественно-математическая специальность, экологическое мировоззрение, авторский стиль профессиональной деятельности.

Отримано: 10.10.2018