

Forming communicative competence among workers of agrarian industry of Kyrgyzstan using multimedia technologies

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Abstract. The article substantiates the relevance of using multimedia technologies to establish effective communication between agricultural specialists. The concept of qualitative formation of communication at the stages of training of a specialist in educational organizations and in the course of subsequent professional activity is developed. The presented concept is fair for any branch of agriculture and is able to set up communications both within the team of one farm and between the teams of different agricultural organizations. The concept is based on the principle of using multimedia technologies that allow simulating practical situations to evaluate the actions performed by specialists to solve the created problem.

1 Introduction

The territory of the Kyrgyz Republic has a favorable geographical position necessary for the development of the agricultural industry. This is due to the climate favorable for growing agricultural products in natural conditions depending on the region [Investment Portal of the Kyrgyz Republic: <https://invest.gov.kg/about-kyrgyz-republic/agriculture>]. For example, in one region the predominant agricultural product is sugar beet, in another region cotton and walnuts are grown. Analysis of statistical data for 2023 shows that the sown area of agricultural crops has increased [National Statistical Committee of the Kyrgyz Republic: <https://www.stat.kg/media/publicationarchive/8160d038-7e3d-4cfc-b59a-fcdcd41d9a05.pdf>]. Most of the country's population lives in rural areas, which provides support for the production and processing of such products and requires appropriate state support. From the economic point of view, the costs are recouped by meeting the requirements for the production of environmentally friendly agricultural products produced by farmers in the Republic for both domestic and foreign markets [1].

All this requires constant development of innovative technologies, modern means of ensuring the processes of planting, care and harvesting of crops, training and professional development of local specialists, attracting foreign partners to study their experience in the agricultural industry and the produced products' advertising. The key factor determining

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the effectiveness of such interaction is the high level of specialists' communicative culture development. This means that any specialist should carry out socio-psychological management of communication processes in any communicative situation, be able to program communication and predict the consequences of communication scenarios being implemented [2, 3].

In any professional environment, regardless of its specifics, the means to manage communication processes are multimedia technologies [4-6]. They allow influencing a person through several information channels (visual, auditory, tactile, muscular and vestibular) and combining, processing, storing, transmitting and displaying heterogeneous data (text, animation, video, sound, etc.) [7, 8]. The use of such technologies is relevant for the agricultural industry, as it allows processing and visualizing long processes, getting skills to work on complex expensive equipment without the risk of damaging it, etc.

Thus, the **purpose of the study** is to create a project that provides the formation of communicative culture through multimedia technologies.

The **theoretical significance** of the study is the definition of key aspects in the communication processes of specialists in the agricultural industry, the establishment of links and relations between such aspects and ways to manage them. The **practical significance** of the study lies in the creation of a methodology for organizing the process of improving the quality of communicative culture in the field of agro-industrial complex and the establishment of interdisciplinary links.

2 Methods

The methods used in the study can be divided into two groups: methods that allow determining the specificity of the subject area and methods that form the content of the developed project.

The specificity of the subject area was determined using the methods of analysis, synthesis, and survey of specialists. As a result of using the above methods, the problems in the agricultural industry in training of relevant specialists and their communication during work at farms are established.

Based on the obtained data, methods that allow creating a project concept for establishing communication links between professionals in the industry using multimedia technologies were identified. For this purpose, the methods of case studies, educational simulators, role-playing games, brainstorming and team building were used. The integrated use of such methods allowed creating standard and non-standard practical situations to set up problems and solutions.

3 Results

The developed project can be implemented in two forms:

1. During education (basic, additional, or retraining).
2. In a corporate format.

Regardless of the form of project implementation it is required to prepare documentation regulating organizational processes [9]. It sets out all the key roles of project participants, rules of their interaction and forms of presentation of various materials.

The authors present a description of the concepts of the project content depending on the form of implementation.

When receiving education, each educational program should contain a practice-oriented approach to mastering any functions and competencies. In order to consolidate and develop professional skills a student is required to pass a practice-oriented exam at the end of each

academic cycle (semester or academic year). Such an exam requires the completion of a practical task directly related to the industry. For example, such a task might be to show the ability to identify a disease affecting a crop. This situation will be recreated using multimedia: a three-dimensional model of a field plot will be projected in the room using a three-dimensional projector. If specialized tools are available, this situation can be reproduced using augmented or virtual reality technologies.

Depending on the course of study or area of study, it is recommended that such situations involve an industry specialist who does not only act as an examiner but also as the process participant during the examination. This means that the examinee will need to interact with the process participant in some way in order to complete the practice-oriented task. This means that the examiner and examinee are in some kind of simulated environment. Such an environment can also be created using multimedia technologies in augmented or virtual reality on a simulator.

Here is an example of a practice-oriented task that can be reproduced using multimedia for an educational program on aquatic bioresources and aquaculture. Task content: the participant needs to set up and prepare hatchery apparatuses and other fish breeding equipment for biotechnical operations. Those operations include selection and injection of spawners, selection of reproductive bodies, insemination and decellularization of eggs, loading of eggs into hatchery apparatuses, control of incubation using preparations of stages of eggs development, performing basic technological operations for measuring and sorting of young fish.

In all these cases, the use of multimedia technology allows realistic reproduction of any object of the agricultural industry within a closed room and repeated practicing of different game scenarios to develop labor functions without spoiling the real objects. In this case there is an opportunity to objectively evaluate the student's actions. The developed specialized software tools reproducing the given situations can evaluate the consequences of each action with the help of the established criterion-evaluation apparatus [10, 11].

The corporate format of the project provides for the use of multimedia, taking into account that it involves established professionals with specialized education and relevant work experience. In this case, multimedia technologies are necessary to strengthen professional communications between employees of one organization and to establish links between organizations to share experience, attract investment and establish markets. For this purpose, the project is based on team building technology combined with multimedia technologies and tools.

Within the framework of the project teams of employees of the organization are required to perform a number of practice-oriented tasks with a certain periodicity (for example, once a year). At the same time, the specialized specialist who is in the team cannot directly solve a certain task. He can only explain to other team members how the task can be accomplished, what to pay attention to and how to react to situations that arise during the work.

This approach allows demonstrating the importance of each specialist's work, setting up communication in the team and demonstrating the professional qualities of each employee. With the help of multimedia technologies, it is possible to recreate non-standard situations, which can be performed by an experienced specialist. This approach assumes that an experienced specialist knows how to perform a basic function, so the test of professionalism is possible with non-standard changes in any indicators.

Another format of corporate events provides for team performance of tasks by specialists from the same industry, but representing different organizations. This approach, as in the first case, allows each specialist to demonstrate his professionalism, but also to learn from the experience of a colleague from another organization. The use of multimedia

technologies also allows creating different situations and with the help of specialized tools to assess the performance of tasks.

4 Discussion

The effectiveness of using multimedia technologies in education has long been studied and proved by many researchers [2, 3, 8]. Such technologies allow creating an information-rich environment in which the participants of the educational process are involved. Text and graphic data, video, audio, augmented and virtual reality elements, interactive tools are used. It is possible to recreate elements of the real world with all its qualitative and quantitative characteristics in a limited space with the help of such tools. The use of such technologies in the educational or professional development process is an important and mandatory tool [6, 9, 10, 12].

The concept obtained in the course of the research realizes the practice-oriented approach in training of specialists, which corresponds to modern trends in global education, and also allows developing experienced workers employed in the agricultural industry [3, 4, 7]. The use of multimedia technologies in this case allows not only to customize communications between specialists in certain conditions, but also to check their interaction efficiency for the development of the industry as a whole [5, 8, 13].

5 Conclusion

Multimedia technologies have become widespread all over the world. Every day everyone uses such technologies either for their professional activities or for entertainment. The use of multimedia during training or in business allows for interactive communication and purposeful management of the channels through which information is transmitted (video, audio, text, etc.). All this allows making processes functional and optimizes them, thus reducing time and financial costs, forming a unified information space.

Agriculture is not an exception. Such industry actively uses multimedia systems that allow creating and reproducing digital twins, training simulators. The use of such technologies and the implementation of relevant projects allow uniting specialists to share experience, improve skills and increase labor productivity.

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