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CURRENT PROBLEMS OF THE DEVELOPMENT OF METHODOLOGICAL COMPETENCE OF TEACHERS IN THE METHODOLOGY OF TEACHING HUMAN ANATOMY AND PHYSIOLOGY ON THE BASIS OF MULTIMEDIA TECHNOLOGIES IN PEDAGOGICAL UNIVERSITIES

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ABSTRACT

The need to improve the quality of education in higher educational institutions of the Republic of Uzbekistan, improve the methodological activities of the teacher in the context of the formation of new pedagogical technologies, actualizes the study of the problem of increasing the methodological competence of teachers, due mainly to their mastery of knowledge, skills in the use of modern information and communication technologies, or rather, multimedia technology. From time immemorial, in improving the quality of higher education, one of the main conditions is the professional competence of a teacher, in which the main place is occupied by methodological competence, which is realized in his methodological activity, considered as a separate, independent type of professional and pedagogical activity. At the same time, methodological competence is a key characteristic of professional qualification and an integrated characteristic of a teacher's professional competence, which manifests itself in knowledge, the ability to develop, select and apply appropriate technologies and methods for solving pedagogical problems of teaching, educating and developing students, understanding them as value orientations, the ability to reflection and the ability to improve their own methodological activities. In the context of the foregoing, this article discusses ways to improve the methodological competence of teachers through the use of multimedia teaching technologies in pedagogical educational institutions.

KEYWORDS

Methodological competence, multimedia technologies, education, problems of teaching, modern information and communication technologies.

INTRODUCTION

In the Decree of the President of the Republic of Uzbekistan No. DP-3775 “On additional measures to improve the quality of education in higher educational institutions and ensure their active participation in the country’s large-scale reforms” dated 05.06.2018, special attention is paid to measures to transform the system of higher education, as well as the role of teachers in the implementation of these measures, in particular, it provides:

1) introduction of a system for monitoring the quality of education, knowledge and pedagogical skills of teachers and students, as well as creating conditions for students;

2) presentation by the higher educational institution of recommendations for candidates accepted for the position of professor-teacher.

The state of education in the country significantly affects the development of the state, so one of the most important tasks to be solved in the near future is to improve its quality. In order to implement this task, multifaceted activities are carried out by the Ministry of Higher and Secondary Education, the leadership of universities, as well as the entire teaching staff.

At the present stage of development of education, special attention is focused on the introduction of ICT, in particular multimedia technologies, in the educational process of a higher educational institution. The teaching of biological sciences is accompanied by

the use of various technologies and teaching aids that provide the student with the opportunity to better remember the material they study [57; With. 6533]. Our article discusses the use of multimedia technologies, the purpose of which is to improve the methods of teaching the subject “Human Anatomy and Physiology”. Teachers teaching this course are called upon to actively use multimedia technologies, which makes it easier for them to find a common language with students, since multimedia developments are the product of their own intellectual work.

Literature review

At the present stage of development of education, accompanied by constantly changing pedagogical conditions, the teacher must be prepared for the use of multimedia technologies, having the appropriate competencies for this. One of the main advantages of using multimedia technologies in the classroom is the combination of all types of teaching aids: verbal, visual, technical, that is, multimedia technologies will allow you to combine a variety of tools that support a deeper and more conscious assimilation of the material being studied. According to researchers, in order to improve the quality of education of university students, it is necessary to use information technologies, and for this it is advisable to create appropriate pedagogical conditions aimed at the formation of an information

culture, the development of educational material and information bases (Spiridonov A.V. 2009).

An analysis of studies on this issue allows us to conclude that multimedia technologies impose certain requirements on the methodological activity of a teacher, thereby contributing to an increase in the methodological competence of a teacher, updating the content of training, organizing training sessions in the best way, and intensive exchange of information between teachers and students (Izotov I.V. 2008).

It should be noted that the importance of methodological knowledge is manifested in their fundamental role, since a teacher who has methodological knowledge and actively applies it in practice is well versed in the content of the subject being studied and knows the appropriate ways to adapt the prescribed content of training to the principles of psychology, sociology, pedagogy and didactics (Damodharan V.S 2007).

It should be noted that the leading role in improving the methodological competence of the teacher is played by his own desire, the desire for research activities.

Summarizing the above, we note that special attention should be paid to the consideration of the system for assessing the effectiveness of the educational process, which is one of the main and systematic elements of the educational process at the university, provided that the criteria, principles and functions of assessing knowledge in general, as well as knowledge on individual topics, are clearly defined. The methods and techniques of the evaluation fund should not only be of a control and supervisory nature, but also of an

educational and educational character, and the evaluation criteria should correspond to the content of the discipline set out in the work program (Kisel O.V., Zerkina N.N., Bosik G.A. 2020).

Methodology

As you know, the activities of a university teacher are divided into pedagogical, methodological and scientific. Methodological activity is the activity of a teacher aimed at organizing methodological work that contributes to increasing the effectiveness of the lesson.

The methodological activity of a university teacher is represented by the following types:

- ❑ educational and methodical activity;
- ❑ scientific and methodological activity;
- ❑ organizational and methodological activity (Solovova N.V. 2018).

The most important factors in organizing the educational process for studying the subject “Human Anatomy and Physiology” using multimedia technologies are the following factors: the teacher’s knowledge of the new possibilities of modern multimedia technologies; he has methodological skills in the field of creating visual multimedia materials, his own websites, electronic teaching aids, presentations, videos; the ability of the teacher to competently use modern multimedia tools. It should be noted that when using multimedia technologies, the role of the teacher remains the leading one, however, teachers in their methodological activities may encounter two types of difficulties (Table №1).

From a methodological point of view	From a psychological point of view
– setting the goal and objectives of the lesson	– computer literacy process
– correct distribution of time for all stages of the lesson (organizational moment, updating knowledge, learning new material, consolidating, monitoring the studied material, summing up, preparing homework)	– fear of using modern multimedia tools
– choice of forms, methods, teaching aids	– lack of positive experience of using a computer when conducting classes in their subject
– cognitive students to the topic under study	– lack of quality in the application of modern computer technologies in teaching
– involvement of each student in active cognitive activity (Izotov I.V. 2008).	– increase in time spent on preparing for classes
– ensuring individualization in the study of the topic	
– organization of classes using multimedia teaching aids (Rasskazov F.D. 2009)	
– a selection of tasks involving	

Table №1. Difficulties encountered by teachers in the context of the use of multimedia technologies

The consideration of ways to improve the methodological competence of teachers in the process of teaching the subject “Human Anatomy and Physiology” on the basis of multimedia technologies deserves special attention (Table №2).

It should be emphasized that the methodological competence of a teacher when using multimedia technologies is manifested in the presence of the following qualities:

- computer literacy;
- the need for constant updating of knowledge in the field of application of multimedia technologies;
- knowledge of sanitary norms and rules for working with multimedia teaching aids;
- ability to search for information on the Internet;
- knowledge of legal and ethical standards of work with information;
- the ability to select and evaluate information;
- ability to combine verbal presentation of educational material with multimedia technologies;



- ability to develop educational material using multimedia technologies;

Organization of methodological activities of a teacher in the subject “Human Anatomy and Physiology”	Application of multimedia technologies and multimedia teaching aids	Result
<p><i>Planning a lesson on the topic “Structure of the excretory system. Structure of the nephron” using textbooks, teaching aids, anatomical atlases, encyclopedias, blackboards, posters, a kidney model</i></p>	<p>Preparing a teacher for classes in the subject “Human Anatomy and Physiology” using multimedia tools: projector, scanner, computer, video camera, interactive whiteboard</p>	<p>Increasing the methodological competence of the teacher as a result of the use of multimedia tools along with verbal and visual teaching aids, thanks to which the teacher will master the methods of selecting multimedia tools to solve the educational problem</p>
<p><i>Preparing a teacher for classes in the subject “Human Anatomy and Physiology” with the help of textbooks, teaching aids, anatomical atlases, encyclopedias</i></p>	<p>Preparing a teacher for classes in the subject "Human Anatomy and Physiology" by using</p> <ul style="list-style-type: none"> – Internet Libraries: – National Library of Uzbekistan named after Alisher Navoi http://natlib.uz; – Republican Scientific and Pedagogical Library http://pedkutubxona.uz; – Electronic scientific library http://maqolalar.uz; – Library of the Academy of Sciences http://fban.uz; 	<p>Increasing the methodological competence of the teacher through:</p> <ol style="list-style-type: none"> 1) obtaining knowledge and improving skills in the field of application of multimedia technologies; 2) developing the ability to correctly select and combine forms, methods, means, techniques, methodological recommendations with multimedia technologies for conducting classes in



	<ul style="list-style-type: none"> – Biological Literature Library of the OBN RAS http://www.sevin.ru; – educational portals: <ul style="list-style-type: none"> – ZiyonET http://www.ziyonet.uz; – Free video lessons http://video-lesson.biz; – internetUrok.ru http://interneturok.ru; – Study http://metodiki.ru 	<p>“Human Anatomy and Physiology”;</p> <p>3) improving the ability to work with Internet resources</p>
<p><i>Planning a lesson on the subject “Human Anatomy and Physiology” on the topic “Structure of the Brain” using textbooks, teaching aids, blackboards, posters, a brain model</i></p>	<p>Development by the teacher of a multimedia presentation on the subject “Human Anatomy and Physiology” on the topic “Structure of the Brain” using:</p> <ul style="list-style-type: none"> – computer programs – Microsoft PowerPoint; <ul style="list-style-type: none"> – iSpringSuite; – Keynote; – online service for developing a multimedia presentation Google Presentation 	<p>Increasing the methodological competence of the teacher through:</p> <ol style="list-style-type: none"> 1) gaining knowledge and improving skills in the development and application of a multimedia presentation; 2) developing the ability to work with computer programs Power point; iSpringSuite; key note; 3) improving the ability to work with Internet resources
<p><i>Organization and control of students’ knowledge on the subject “Human Anatomy and Physiology” using didactic materials</i></p>	<p>Organization and conduct of computer testing on the subject “Human Anatomy and Physiology” with the help of:</p> <ul style="list-style-type: none"> – educational portals: – Tests for “Bilimlar Bellashuvi” and 	<p>Increasing the methodological competence of the teacher through:</p> <ol style="list-style-type: none"> 1) developing the ability to compose a pedagogical scenario for conducting computer testing;



	<ul style="list-style-type: none"> – “Fan Olympiad” http://bellashuv.uz; – Bank of tests in all subjects http://bellashuv.zn.uz; – Tests in biology and chemistry http://testbiohim.ru; – Electronic tests http://abitur.uz; – online services for creating tests and conducting online testing: – Google Classroom platform; <ul style="list-style-type: none"> – Google Forms; – Online Test Pad; – electronic textbook “Human Anatomy and Physiology” (authors Khamdamova M.I., Shakhmurova G.A.) 	<ul style="list-style-type: none"> 2) improving the teacher’s ability to work with Internet resources; 3) gaining knowledge and improving skills in the development of an electronic teaching aid; 4) developing the ability of a teacher to work with an electronic textbook; 5) mastering the ability to create online tests using online services
<p style="text-align: center;"><i>Assessing student knowledge and keeping a journal</i></p>	<ul style="list-style-type: none"> – assessment with the help of an automated university management system (ACS); – filling in the electronic journal on the website http://reja.tdpu.uz/shaxsiyreja/; – assessment using online services: <ul style="list-style-type: none"> – Google Classroom Platform 	<p style="text-align: center;">Increasing the methodological competence of the teacher through:</p> <ul style="list-style-type: none"> 1) obtaining knowledge and improving skills in the field of application of multimedia technologies; 2) improving the command of ACS tools of the university; 3) improving the ability to use an electronic journal, regularly fill it out
<p style="text-align: center;"><i>Development by the teacher of homework for students in the subject “Human Anatomy and</i></p>	<ul style="list-style-type: none"> – abstracts, term papers, reports created using the program – Microsoft Word; 	<p style="text-align: center;">Increasing the methodological competence of the teacher through:</p>



<p><i>Physiology” on the topic “Girdle of the Upper Limbs” using an anatomical atlas, textbook, educational and methodological aids.</i></p>	<ul style="list-style-type: none"> – projects: – creating presentations using PowerPoint or iSpringSuite; – preparation of skylinkast - video recordings of what is happening on the screen of a computer, laptop or phone, which may be accompanied by voice comments of the author of the recording; – creating your own educational website using the Google Sites online service - a professional web resource that allows you to store and visualize almost any type of information 	<ol style="list-style-type: none"> 1) developing the ability to apply non-standard approaches to the implementation of creative multimedia projects; 2) improving the ability to evaluate homework done by students using multimedia technologies or multimedia teaching aids; 3) obtaining knowledge on the use of programs for creating presentations, online services; 4) mastery of digital equipment at the user level.
<p><i>Organization of a pedagogical conference through the Zoom program.</i></p>	<ul style="list-style-type: none"> – Application of multimedia teaching aids: video camera, tablet, scanner, printer. – Application of multimedia technologies: multimedia presentation, e-tutorial, mobile application – Improving the teaching and methodological activities of the teacher as a result of participation: <ul style="list-style-type: none"> – in competitions, scholarships, promotions and grants – http://tanlov.uz; – https://eyuf.uz; – pedagogical forums. 	<p>Increasing the methodological competence of the teacher through:</p> <ol style="list-style-type: none"> 1) obtaining knowledge and improving skills in the field of application of multimedia technologies; 2) mastering the methods of selecting multimedia tools; 3) developing the ability to draw up a pedagogical scenario for holding a pedagogical conference; 4) improving the ability to work with Internet resources;



		<p>5) gaining knowledge and mastering skills in the development of an electronic teaching aid; 6) improving the ability to work with an electronic textbook</p>
<p><i>Improvement and maintenance of educational and scientific and methodological activities of the teacher</i></p>	<ul style="list-style-type: none"> - Google.uz; - Yandex.ru - Google Academy (Google scholar) - search for scientific publications; - Scientific electronic library - Scopus/ScienceDirect; - Web of Science; - http://eLIBRARY.ru 	<p>Increasing the methodological competence of the teacher through:</p> <ol style="list-style-type: none"> 1) obtaining knowledge and improving skills in the field of application of multimedia technologies; 2) improving the ability to work with Internet resources; 3) developing the ability to register and participate in pedagogical forums and competitions; 4) improving the ability to work with search engines

Table №2. Ways to improve the methodological competence of teachers in the process of teaching the subject “Human Anatomy and Physiology” based on multimedia technologies

Summarizing the above, it should be noted that the fundamental innovations taking place in the field of education in our country require the development of methodological support for the educational process in each educational institution.

Modern information and communication technologies will remain the main source of pedagogical innovation in the coming years. At present, in connection with the widespread introduction of modern pedagogical and

information and communication technologies into the educational process, special attention is paid to providing the educational and laboratory base of educational institutions with the latest educational and laboratory equipment and computers (Nizomkhanov S.E. 2014).

CONCLUSION

1. The concept of “methodological competence” is scientifically substantiated and its manifestation in the following qualities is revealed: the need for constant updating of knowledge in the field of application of multimedia technologies; knowledge of sanitary standards and rules for working with multimedia teaching aids; ability to search for information on the Internet; knowledge of the legal and ethical standards for working with information; the ability to select and evaluate information; the ability to combine the verbal presentation of educational material with multimedia technologies; ability to develop educational material using multimedia technologies.

2. Recommendations have been developed to improve the methodological competence of a teacher in the process of teaching the subject “Human Anatomy and Physiology”, in particular, proposals have been made for organizing classes using multimedia teaching aids, creating a multimedia presentation, preparing a teacher for classes using Internet libraries, developing homework, assessment of students and keeping a journal, organization of a pedagogical conference, improvement of educational and scientific and methodological activities of a teacher.

3. Currently, in connection with the widespread introduction of modern information, communication and pedagogical technologies, electronic textbooks and multimedia tools into the educational process, special attention is paid to providing the educational and laboratory base of educational institutions with the latest educational and laboratory equipment and computers.

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