

Application of Multimedia Technologies in Teaching Physics When Training Specialists in the Direction of Physics of Pedagogical Institutions

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Abstract: The use of multimedia technologies in teaching physics opens up new opportunities for the teacher, as well as develops the potential of students. Thanks to multimedia teaching tools, a new information environment is being created that combines modern methods and an approach to the study of physics.

Keywords: physics, education, multimedia technologies, animated images, graphic data, multimedia tools, information technologies, computer programs, learning efficiency.

Introduction

Modern education faces a difficult task - the transfer of knowledge and its transformation into a tool for creative exploration of the world. At the same time, in the first place are the requirements for the preservation and development of the student's personal qualities, the development of his creative abilities and intellect, and his vital value orientation. The question of how, with the help of special pedagogical means, to purposefully develop the student's intellect, his creative thinking, and at the same time to form a scientific worldview and an active life position, still remains open. This is one of the most important problems among modern innovative tasks of teaching physics.

Modern life is unthinkable without the use of information technologies and devices based on them, such as mobile phones and computers, e-mail and Skype, electronic document management, electronic payments and much more. There is nothing surprising in the fact that education cannot do without multimedia applications.

The 21st century is the century of biotechnologies, robotics, creation of artificial intelligence, which are inconceivable without the use of computer technologies. A modern person, including a student, lives in an electronic information environment, so one of the main tasks facing the education system is the use of information technology in educational disciplines, including teaching physics.

The use of a computer plays a key role in the modern educational process. The computer is the most effective of all the technical means that have existed so far, which the teacher had at his disposal. The key issue of its application in the educational process is the creation and implementation of an EER (electronic educational resource) to support the assimilation of physical knowledge by students.

Ideally, the use of multimedia technologies changes the way teacher and student contact through increased individual interaction. Each student gets the opportunity to ask a question or show a solution to their problem and receive an individual answer from the teacher at any time using e-mail or Skype.

The teacher, as a rule, seeks to offer the student a task that will make him look for a new solution. In this case, the possibilities of information technology, the speed of obtaining a variety of information can ensure the awakening of the research and creative abilities of the student, that is, they can stimulate cognitive motivation.

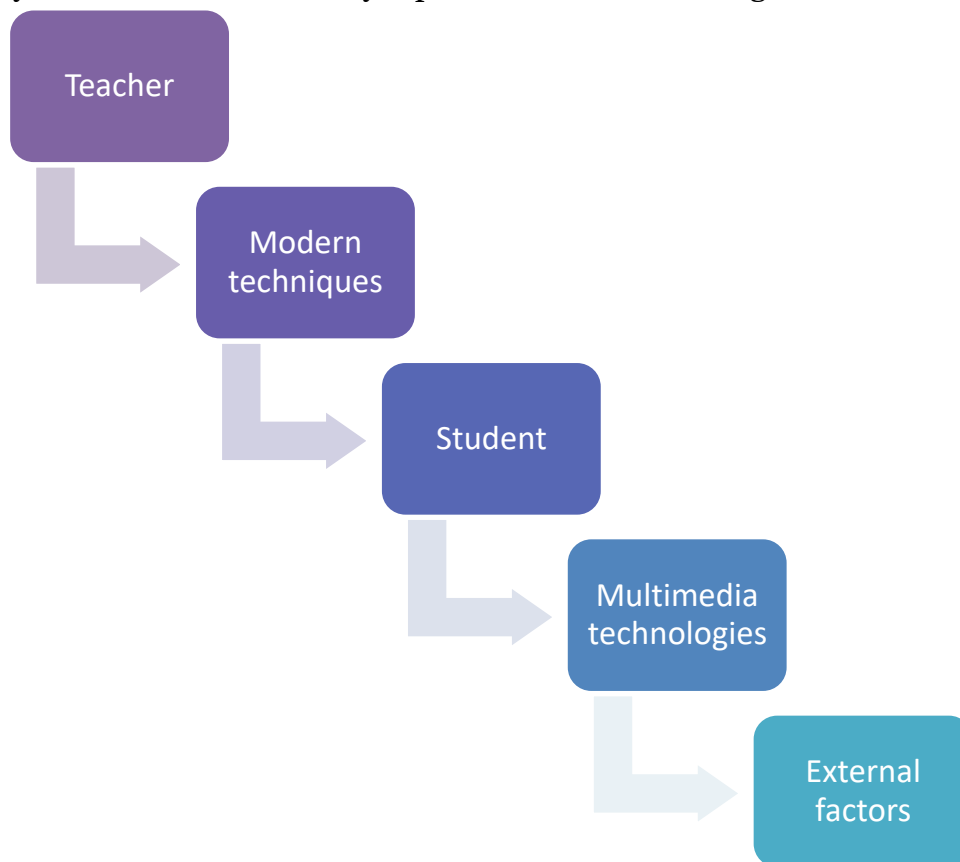
Cognitive motivation includes the knowledge of the new, the study of the process of the emergence of new knowledge, the assessment of its content. The formation of cognitive motivation is facilitated by the availability of existing knowledge and the search for new relevant information, which, in turn, is an incentive for the use of multimedia technologies.

No less relevant is achievement motivation, which is associated not only with getting an excellent grade, but also with success in the future during professional activities.

The use of a point-rating system in combination with multimedia technologies increases the possibility of monitoring progress and stimulates the emergence of achievement motivation.

Multimedia technologies in teaching physics should include such activities of students that are characterized by their subjective position in the classroom, since the activity is determined not only by the content and structure of physical knowledge, but also by their individual needs and interests.

The modern educational environment with the use of multimedia technologies in physics can be schematically represented as follows (Fig. 1).



Pic. 1

Thus, the interest in obtaining knowledge for students is influenced by the teacher, external factors, multimedia technologies and modern methods in teaching physics.

Any method of using multimedia technologies in teaching physics will be considered effective if it is able to ensure the interest of students in cognitive activity in the classroom, which contributes to obtaining a positive result in educational activities. To successfully implement innovative teaching methods, the teacher needs to:

1. Possess modern information knowledge, technologies and methods of their application.
2. See and understand the interests of students.
3. Feel the problems of the situations being studied.
4. Connect the studied material with the daily life and interests of students.
5. Set goals and evaluate the degree of their achievement together with the students.

Multimedia technologies facilitate the learning process and make it possible to make classes more interesting, dynamic, and integrally present knowledge in physics. The study of physics is difficult to imagine without experiments, laboratory and practical work, observations.

In physics classes, it is possible to use multimedia technologies in the following areas:

- 1) multimedia scenarios for conducting classes;
- 2) electronic didactic materials and test;
- 3) computer simulators for checking and controlling knowledge;
- 4) Internet resources for preparing for lectures and seminars.

Experience shows that the use of multimedia technologies in teaching physics makes it possible to differentiate educational activities in the classroom, activates students' interest in knowledge, develops their creative abilities, and also stimulates mental activity, encourages research activities.

References:

1. Urinova, N. S. (2022). Opportunities of agroturism in Parkent district. *ACADEMICIA: An International Multidisciplinary Research Journal*, 12(5), 1278-1280.
2. Urinova, N. S. (2022). Principles of using new educational technologies in teaching geography to school students. *Galaxy*, 10(6), 629-635.
3. Якубжонова, Ш. Т., & Уринова, Н. С. (2021). Паркент туманида эко-агротуризмни ривожлантириш истиқболлари. *Academic research in educational sciences*, 2(3), 824-829.
4. Рўзимова, Х. К., Турабоев, А.Н., Турабоева, Г. Н., Мамадалиев, Х. (2018). Ўсимликларни қурғоқчиликка ва стрессга бўлган чидамлилигини оширишда микробиопрепаратларнинг роли. *ЎзМУ хабарлари*, 3(1), 269-271.
5. Рўзимова, Х. К., Турабоев, А.Н., Турабоева, Г. Н., Мамадалиев, Х. (2018). Ўсимликларни ташқи муҳит омиллари таъсиридан муҳофаза қилишда тупроқ микроорганизмларининг роли. *ЎзМУ хабарлари*, 3(1), 272-274.

6. Zaripova, M., Babakhodjaeva, N. (2019). Using the electronic educational-methodical complex in development quality of teaching the subject Theory of algorithm. *International Journal of Academic Research*, 1(2), 34-36.
7. Eshmuminov, A. (2019). Problems of creating national corpus of the uzbek language. level of synonyms. *Theoretical & Applied Science*, (5), 47-50.
8. Eshmuminov, A. (2022). The study of the meronymic phenomena in linguistics. *Барқарорлик ва етакчи тадқиқотлар онлайн илмий журнали*, 2(4), 265-266.
9. Eshmuminov, A. (2022). Semantik razmetka tushuncha vosita va usullar. *Til va adabiyot ta'limi*, 1(10), 34-35.
10. Eshmuminov, A. (2022). Semantic system: concepts, means and methods. *Science and Education*, 3(5), 1891-1895.
11. Umarova, A. I., Miskino, S. Z. (2022). Cluster approach to the educational process in the organization of preschool education. *International Conference on Social and Humanitarian Research*, 1(2), 74-76.
12. Умарова, А. И., Мискинова, С. З., Кимсанов, О. (2022). Таълим технологиялардан фойдаланишнинг ўзига хос хусусиятлари ва ахамияти. *Ўзбекистонда fanlararo innovatsiyalar va ilmiy tadqiqotlar*, 2(9), 207-210.
13. Умарова, А. И., Абдалова, С. Р., Мискинова, С. З. (2022). Таълим оловчиларни етакчилик қобилиятларини аниқлаш ва ташхислаш. *Ўзбекистонда fanlararo innovatsiyalar va ilmiy tadqiqotlar*, 2(9), 203-206.
14. Artikov, A. (2020). About some methodological problems in teaching special sciences. *Scientific Bulletin of Namangan State University*, 2(7), 379-384.
15. Shurigin, V. V., Ruzimova, K. K., & Davranov, K. (2018). Biological control of phytopathogenic fungi causing chickpea root diseases by means of PGPR in the saline soil conditions. *Int J Adv Biotechnol Res*, 9(4), 36-47.
16. Davranov, K., Shurigin, V., Mammadiev, A., & Ruzimova, K. (2019). Epiphytic bacteria *Bacillus subtilis* UzNU-18 from jerusalem artichoke (*Helianthus tuberosus* L.)—the active biocontrol agent of phytopathogenic microorganisms. *Mikrobiologichnyi zhurnal (Kiev, Ukraine: 1993)*, 81(3), 27-39.
17. Рузимова, Х. К. (2022). Экологические последствия засоления почв хорезмской области на сельскохозяйственные культуры. *ББК 20.1+ 28.08 А43*, 21, 343.
18. Мадримов, Р. М., & Рузимова, Х. К. (2022). Питнак воҳасида тарқалган тупроқларни экологик мелиоратив ҳолати ва улардан фойдаланиш. *Academic research in educational sciences*, 3(1), 1132-1140.
19. Рузимова, Х. К. (2022). Ўсимликларнинг қурғоқчиликка ва бошқа стресс оилларига бўлган чидамлилигини оширишда микроббиопрепаратларнинг ўрни. *Агро кимё химоя ва ўсимликлар карантини, Агро кимё химоя ва ўсимликлар карантини*, 1(2), 33-36.
20. Рузимова, Х. К. (2022). Бист ва Бист М микробли препаратлар таркиби хусусиятлари ва ишлатилиш услублари. *Хоразм Маъмун Академияси ахборотномаси*, 2(2), 74-78.
21. Хўжаназаров, Ў. Э., Рузимова, Х. К., Есимбетов, Р. М., Алламуратов, Б. Д., Бобокелдиева, Л. А., Наралиева, Н. М., & Халқузиева, М. А. (2022). Қашқадарё ҳавзасининг тоғолди яйловлари мониторинги ва экологик оптималлаштириш. *Образование*, 8(9), 10.

22. Рўзимова, Х. К., Турабоев, А.Н. (2021). Бист-М биопрепаратининг тупроқ таркибидаги тузлар миқдорига таъсири. ЎзМУ хабарлари, 3(2), 121-125.
23. Ruzimova, K. K. (2021). The new microbial preparation BIST-M increases wheat productivity. *Central Asia Genomics*, 9(10), 93-94.
24. Ruzimova, K. K. (2021). Bacterial strain *Pseudomonas putida* PP-1 for the effective biological control of some phythogenic fungi causing wheat diseases. *International Conference on Microbiology Biology and Biotechnology of Microorganisms*, 16(17), 91-92.
25. Шурыгин, В. В., Рuzимова, Х. К., Давранов, К. (2019). Экологическая биотехнология. *Ilm Ziyu Zakovat*, 1(1), 1-236.
26. Шурыгин, В. В., Рuzимова, Х. К., Давранов, К. (2019). Экология микроорганизмов. *Ilm Ziyu Zakovat*, 1(1), 1-252.
27. Ruzimova, K. K., Davronov, K. (2019). Bacterial Diversity in Nodules and Rhizosphere of a Chickpea. *Journal of Biological and Chemical Research*, 8(1), 45-51.
28. Рўзимова, Х. К., Турабоев, А.Н. (2017). Кинетика колонизации корней томата различными видами PGPR. ЎзМУ хабарлари, 3(2), 169-172.
29. Рўзимова, Х. К., Турабоев, А.Н. (2017). Стресс шароитларда ассоциатив бактериялар ва ўсимликларни ўзаро муносабатларини ўзгариши. ЎзМУ хабарлари, 3(2), 164-168.