
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN TEACHING PHYSICS
Alloqulov Mirzabek*a physics teacher at Creation School named after Abdulla Qodiri***Bultakova Sarvara***a pupil of 10th grade at Creation School named after Abdulla Qodiri***Hasanova Hafiza***a pupil of the 10th grade at Creation School named after Abdulla Qodiri***Article history:***Received: 25th February., 2022**Accepted: 27th February., 2022**Published: 28th February., 2022*

Abstract: *Information and Communication Technology (ICT) is beginning to be recognised as one of the major instructional components especially in science subjects. The article looked at importance of teacher’s knowledge and learner’s interactions in Physics learning; applications of ICT in Physics education; benefits of ICT in teaching and learning Physics in secondary schools.*

Key words: *ICT, teaching and learning, software, magnetism, internet, Skype, laboratory, benefit.*

The development of physics and the study of physics are inextricably linked with the construction and study of models of various physical phenomena. Therefore, one of the most pressing issues in the study of simplified equivalent models of physical laws by the intellect is the development of science-based approaches. ” The most pressing issue in the learning process is the discovery of a new way of teaching in each physics lesson. This is directly related to the reformation of the teaching process, such as the introduction of a new teaching method that fits the real needs of students to learn the subject on the basis of an innovative approach to teaching materials ¹”.

Scientific and methodological research aimed at developing students’ intellectual potential in the teaching of Physics on the basis of pedagogical software which evolves learners’ thinking through computer models of physical phenomena is one of the most important issues.

There are many teaching resources we can use to teach Physics effectively; observation has shown that many of these resources have not achieved much in the aspect of pupils’ achievement. ICT integration into Physics learning is the best solution for improving pupils’ academic achievement in the present dispensation. ICT attracts learners and make them lively in class; it promote learner interactions in the course of learning; increase the effectiveness of teaching and improve students’ learning. In Meleisea, UNESCO viewed ICT as a technology of creating, displaying, storing, manipulating and exchanging information. According to Collis and Moonen in Nguyen, Williams & Nguyen (2012) the application of ICTs into classroom teaching includes the learning resources, instructional organization of learning and communication. These made use of educational

¹ Raximov N., Rasulov R. Nanofizika va nanoelektronika asoslari. Namangan, 2019. 104 b.

software, computer-based testing system, e-mail system among others². Computer models of many physical phenomena are very easy to explain and help to develop students' cognitive abilities moreover imagination. For instance, a material point, ideal gas, a harmonic oscillator, the Rutherford experiment model and charged particles and so on. There are phenomena that looked abstract to students such as optical phenomena, magnetic and mechanic phenomena; some of them are too fast for the student to comprehend, computer simulation will slow down the speed while students will be able to study them and learn. Movement of air molecules, its interactions and collision cannot be well taught except through computer simulation and video. There are some theoretical topics in Physics that are difficult to learn in Physics such as the working of transistors, inductors, transformer which computer animation can assist to learn effectively. Student can learn hydraulic mechanism; weight of air and common property of air and water through Physics Pro. Yenka electricity and magnetism is a good Physics resource that can simulate power stations, draw and simulate circuit diagram; parameters like resistance or capacitance, graph, quantities like voltage and current can also be edited³. When it comes to presenting information in various ways such as text, picture, tables and graph, ICT is a powerful tool to be used, especially to visualize a complex process in Physics teaching. This information can be manipulated on a computer so that Physics students can make changes and at the same time evaluate the changes made. Feedback which could be done through computer is very important in teaching and learning process because it improve student learning. ICT improve student learning when they spend quality time working or practising any skill already learnt in Physics.

Learning activities could be communicated through e-mail system. Teacher could be away from school and yet be in contact with the student by sending learning activities through e-mail. Social network and online chat are another means by which teacher and student can communicate. Both teacher and student can communicate together without necessarily be in face to face classroom situation through internet. This could be done through Yahoo messenger or Skype; many Physics concepts could be learnt by student through these methods.

In addition, the "PhET Simulations" and "Physics at School" programs increase students' interests in physics.

Internet is a good resource for learning Physics; students can learn through Google, Wikipedia and other internet website or blog.

Analysing some effects of ICT in teaching physics I can say that there are numerous benefits both physics students and teacher can derive from ICT when properly applied. ***Some of these benefits are highlighted below:***

- Most of the Physics concepts, laws and theories were learnt by memorization which can easily be forgotten by students; the use of ICT help student to learn them with ease and retain them in their memory for a very long period;
- It improves Physics students' participation in classroom activities;
- It helps both Physics student and teacher to gain access to current Physics references and standards;
- It affords both Physics student and teacher the opportunity of holding conferences, seminars and workshops on issues relating to Physics education across the globe without boundary restriction;

² Adeyemo, S.A. (2020). Teaching/ learning physics in Nigerian secondary school: The curriculum transformation, issues, problems and prospects. International Journal of Educational Research and Technology, 1.1 99-101

³ <https://www.researchgate.net/publication/263654519>

-It enables both Physics student and teacher to exchange ideas, learning materials and teaching strategies quickly;

-Physics education changes every day and ICT will assist both student and teacher not to rely on obsolete information.

In conclusion, pedagogical software environment, information learning environment, intellectual learning systems, multimedia lessons, case laboratories, computer modeling and software development of physical phenomena used in various branches of physics will be fruitful to improve students' academic achievement in Physics.

REFERENCES

1. Adeyemo, S.A. (2020). Teaching/ learning physics in Nigerian secondary school: The curriculum transformation, issues, problems and prospects. *International Journal of Educational Research and Technology*, 1.1 99-101
2. Kola, A.J (2019). Uses of Instructional Materials for Teaching and Learning Physics in Edu and Patigi Local Government Areas, Nigeria. *International Journal of Research in Education*. 4(1&2), 74-79
3. Каримов Р.Х. Использование принципа игрофикации при организации электронного обучения // *Электронное обучение в непрерывном образовании*. – 2018. - Т. 1. – № 1 (2). – б. 68-72.
4. Raximov N., Rasulov R. *Nanofizika va nanoelektronika asoslari*. Namangan, 2019. 104 b.
5. Wanbugu, P.W. & Changeiywo, J.M. (2018). Effect of mastery learning approach on Secondary school students' physics achievement. *Eurasia Journal of mathematics, Science & technology education*, 4(3), 293-302
6. <https://www.researchgate.net/publication/263654519>
7. <https://knepublishing.com/index.php/Kne-Social/article/view/2380/5240>
8. www.ziyonet.uz