Challenges of ICT in education

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Abstract

The article examines advantages and disadvantages of ICT in education, singles out scientific and practical problems of its implementation and makes suggestions for improving this process. Besides, it studies UNESCO initiatives on ICT incorporation into the curricula, thus, reinforcing national potentials in ICT usage in education in the world.

To cope with the challenges ICT poses to higher education, in the authors' opinion, is possible through a coordinated effort by the teachers, continuity of approaches to education, as well as quality and effectiveness at development of educational competences.

Keywords: education, ICT, UNESCO, IITE, technology

1 Introduction

Technical advancement of the modern world, popularity of social networks are significantly changing the direction in education. Both the future of the education, and of society in general depends nowadays on understanding by all participants of educational process of the direction of a strategic development of education [1].

ICT (Information and Communication Technologies) is a generic term referring to technologies, which are being used for collecting, storing, editing and passing on information in various forms [2]. Schools can use a diverse set of ICT tools to communicate, create, disseminate, store, and manage information. This involves using digital technology, communication tools and/or accessing, managing, integrating, evaluating and creating information in order to function in a knowledge society. What is more, most 21st century skill lists include ICT and ICT-related skills [3].

2 General part

Worldwide research has shown that ICT can lead to improved student learning and better teaching methods. A report made by the National Institute of Multimedia Education in Japan, for instance, proved that an increase in student exposure to educational ICT through curriculum integration has a significant and positive impact on student achievement, especially in subject areas such as mathematics, science, and social study [4].

Addressing student needs to access technology supporting their learning, meeting teacher technology requirements, and providing digital tools within budget might be a challenging task.

When teachers are digitally literate and trained to use ICT, their expertise can lead to higher order thinking skills, provide creative and individualized options for students to express their understandings, and leave students better prepared to deal with ongoing technological change in society and the workplace [5]. At the same time we must address the challenges faced by education due to the fast changes in society, economy, and technologies:

- How might technological changes impact the society, labour market needs, higher education systems and institutions?
- How can and do countries and institutions address these changes?
- In what ways are the skills required by the market changing?
- How should higher education institutions adapt to the changing learning needs?
- What impact will the availability of new technologies and online resources have on how people learn?
- Are national systems of recognition of learning outcomes and credentialing prepared to accommodate the results of open education? [6]

There are many advantages of ICT use. For example, through ICT, images can easily be used in teaching and improving the retentive memory of students; teachers can easily explain complex instructions and ensure students' comprehension; teachers can create interactive classes and make lessons more enjoyable, which could improve student attendance and concentration. ICT offers the opportunity for distance learners to use online educational materials, get quick access to them, as well as provides learners with additional resources to assist resource-based learning.

On the other hand, teachers with a lack of experience using ICT tools may find it difficult to incorporate this practice into their lessons; sometimes setting up the devices can be troublesome, to say nothing of limitations of budget and, thus, inability to afford the latest IT devices. Besides, ICT may limit students' imagination, critical thinking and analytical skills. Computer-based learning has negative physical side-effects, such as deteriorating eyesight or backache. The problem of plagiarism is very common as
many students tend to focus on copy/paste from the Internet and find it difficult to generate their own ideas.

UNESCO guides international efforts to help countries understand the role ICT can play to accelerate progress toward Sustainable Development Goal 4 (SDG4), a vision captured in the Qingdao Declaration. This is the first global declaration on ICTs in education, which aims to unleash the full potential of ICTs to achieve the educational targets for equity, access, quality and lifelong learning in the Sustainable Development Goals (SDGs) for the next 15 years. In its Preamble, it affirms, “To achieve the goal of inclusive and equitable quality education and lifelong learning by 2030, ICT—including mobile learning—must be harnessed to strengthen education systems, knowledge dissemination, information access, quality and effective learning, and more efficient service provision.” It encourages governments, industry partners and all other education stakeholders to join forces and share resources to create equitable, dynamic, accountable and sustainable learner-centred digital learning ecosystems [7].

What is more, in 1997 the UNESCO Institute for Information Technologies in Education (IITE) was established as an integral part of UNESCO by the General Conference of UNESCO at its 29th session with the mission to serve as a centre of excellence and provider of technical support and expertise in the area of ICT usage in education. Offering advice and guidance on reinforcing national potentials in ICT usage in education in the world, IITE predicts changes in the curricula, such as:

- New balance between informal and formal learning should be established.
- Curricula must address not only the knowledge and competences of a given moment, but the ability to learn and act in a changing world
- Digital competencies need a more flexible updated curriculum that is also shaped by students themselves.
- More online and more personalized learning, more contact with the society.
- Redesign of courses, plans for semesters and even the duration of programs. Alternative online assessment.

Besides, the role of HE institutions will change, namely, online distance learning and campus-based learning will merge or take over each other functions and the share of online distance learning would be growing in the coming years.

The role of teachers will transform into the role of facilitators of knowledge, guides, mentors, e-tutors, and counselors. Some experts even expected that teachers would not only deliver or transfer knowledge, but would become “pedagogical engineers”, “digital resources designers” and “digital courses designers”. As teacher educators play a major role in successful implementation of ICT in education all this calls for urgent need for retraining of teachers [6].

3 Conclusion

To sum up, with its advantages and limitations ICT poses serious challenges to higher education institutions, which are already going through considerable changes. In future higher education will look quite different in terms of the mission and functions of higher education institutions, modes of teaching and learning, pedagogical approaches, student-teacher relationships and the role of teachers. To stay competitive teacher educators should use ICT to support existing pedagogical practices, but be aware of its potential drawbacks. Only a coordinated effort by the teacher educators will ensure success of ICT in a reasonable manner.

References