Developing National Policies for Encouraging Teachers' Creativity and Education of the Future

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Abstract

The society change towards knowledge economy is a natural and logical process. It turns to happen faster in countries with a better overall understanding of the role of information and communication technologies (ICT) for social and economic development. There is an existing need for a serious reform in the way education is provided nowadays and in this article we will examine how the state can intervene effectively in this process. Our analysis is based on the Strategy for effective implementation of information and communication technologies in education and science in the Republic of Bulgaria (2014-2020) [1] and the possible impact of some of its measures on the quality of education and the creativity and personal development of teachers. Nevertheless the education is a global market and follows general market trends, a suitable government intervention could truly facilitate the educational transformation, making not only faster, but long term sustainable effort towards information society and economy of knowledge.

The material describes not only the new role of the teacher in the transformed educational reality, but also the methods to make this role consistent and effective for changing the educational outcomes in more practically oriented and life changing manner. The education of the 21st century should be more centred on the student and his/her interests rather than the knowledge at general and development of personal skills should be more dependent on the characteristics of the individual and not on the perception of the student as being part of a group.

There is a serious need to utilize the potential of information technology for efficient analysis of the individual skills and making e-learning one of the pillars of the modern education is a must. Some of the key elements in the educational transformation are implementing cloud technologies, m-learning and universal access to information and the analysed Strategy is an exemplary model for an EU Member state intervention effort and efficient utilization of public funding for development purposes.

1. Introduction

In the last 20-30 years, the world has become extremely dynamic and the development of globalization and especially of information and communication technologies (ICT) is among the key factors for this dynamics. Information instantly reaches all edges of the planet; knowledge in any social area grows by monstrous pace, while sharing important scientific results is already possible with a stroke of a key, allowing huge saving of funds, equipment and research capacity. Thanks to this accumulation of knowledge and free flow of information it is not exaggerated to say that more significant scientific and technological breakthroughs happened in the last 30 years than in the previous 300. Not surprisingly, the world's leading companies by market capitalization no longer belong to the energy and banking sectors, but to the ICT and this process will continue to deepen.

1.1 The role of ICT in market economy

ICTs are essential for the global economic development because they are present everywhere. Nobody is surprised anymore by deployment of smart sensors for various agriculture processes, industry is robotized with a stunning pace and even fields such as arts and culture already find themselves directly affected by ICT - from production of sculptures with a 3D printer to the appearance of moving holograms and electronic music, everything is subordinated to the overall technological development. Without technologies it is now impossible to make purchases in the supermarket, to book a plane ticket or even to get your salary and in whatever area we work, the use of ICT has become a compulsory element of the personal competitiveness and social survival.

1.2 Information Technologies and the Transformation of Education

In modern economy the education is a market like everything else. It is logical that ICTs are key prerequisite for a revolutionary change in the way education is provided. The information is literally

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everywhere and a simple Google search can give us more relevant data compared to reading dozens of books on given topic. Nowadays the learning process is not just absorption of information but rather a reflection of the individual skills to process it and implement in life. The role of technologies is invaluable because, when applied appropriately, they are already able to measure our level of adequacy in handling certain data, evaluate the way we react when gaining certain knowledge or even predict with great accuracy our future success in life based on academic achievements.

2. Teacher as a driver of educational change

The role of the teacher dramatically changes in knowledge economy. He is no longer a sole authority and gateway to information for the students but his/her role gradually evolves into the role of a leader who guides the eager for knowledge through the ocean of information. According to Cheng "Educational leadership is crucial to the success of education reforms and school effectiveness." [2] The main role of the modern teacher is to inspire and motivate students and generate interest towards the subject, triggering their curiosity and making them involved in the knowledge process. Teacher must try to find a bridge to each student, making him actively empathize with the process of learning and new technologies have a key role, allowing this communication to continue outside the classroom - through e-mail, Skype or appropriate e-learning platform. The modern education does not ignore the role of the teacher but raises it to a new level of perception going beyond the rational framework of knowledge. To summarize in one word the role of the modern teacher, this would be an „inspiration“ – good teacher should be able to inspire and help students see beyond the pure facts and figures and find things that really excite them.

2.1 Creativity as a norm for the development of the educational process

We cannot discuss inspiration neglecting the topic of creativity in the teaching profession. In science facts are important, but for their understanding is important also the perspective of the analysts. People are not the same and under similar circumstances they can put differently their priorities or propose different solutions to the same problem. If we perceive training as a kind of cooperation, we can safely assume the thesis of Lavoye and Roth that "The most important component in the collaborative process is a shared vision" [3]. Our individual characteristics highlight the role of creativity in the educational process and we often judge about the academic achievements and future success of students by the creative potential of their teacher. Whether a teacher leaves a trace in our minds normally depends not only on his professional capacity, but mostly to what extent he/she is inspired by his/her subject area and brings the inspiration to the followers. As Jones and O'Brian state "Teachers are agents of change. They build relationships to other actors in the school system and they decide which models and ideas will sustainably be implemented in schools "[4]. It is therefore essential to free the teacher from boring administrative obligations, thus allowing him to deploy his full potential in communicating with children and flash their curiosity and excitement of discovery during classes. It is not an exaggeration to say that the facts are just one of the layers of knowledge, and the rest is creative interpretation and critical reflection of what is happening.

2.2 Conversion of students from being an object to becoming a subject of education

For centuries, student had a subordinate role in the educational process. In the centre of the educational model was positioned the knowledge and even nowadays the majority of the education systems are centred around specific information that disciples need to acquire, and how this knowledge is refracted through the prism of individual characteristics is systematically ignored. In fact, a modern education should be focused on personalized approach to each student. It is extremely naive to assume that one size clothes should not fit to all students while one type of training should fit everyone. Presumably, in their emotional, psychological and behavioural characteristics children can be infinitely various and the attempt to impose the same knowledge on different brains is absolutely wrong and even devastating for their future development. Ultimately, if we are trying to reveal the best features of an individual, we shouldn't try to squeeze him into a premade template, as the majority of education systems do today. The classic stereotype, in which we measure the quality of education through the quantity of empirical knowledge acquired, rather than measuring the skills for understanding that knowledge, is a system error. To be adequate to the needs of today, we should give priority to educational techniques, where individualized approach is encouraged, and in this aspect the new ICTs are essential element of modernity, because they allow that to happen in a refined and unobtrusive way. In fact, a large part of the 21st century education should be exported outside the classroom, in cyberspace, because that is where students can adequately deploy their

creative potential and teachers refine their individualized approach, which so far has been restricted within the classroom walls and school hours.

3. The role of institutions to promote educational change

In the knowledge economy, governments must lead an active educational policy, but that does not necessarily mean direct intervention in education. Changing curricula is probably important, but is not the real change, which modern education needs. In fact, the state should provide the technological tools and opportunities to develop a customized, ubiquitous and continuous education. Schools should have access to Internet, e-learning systems, databases with multimedia resources and students should be able to reach these resources at any time and from any location, using personal mobile devices. Schools need to introduce modern systems for automation of administrative duties, thus giving teachers more free time to promote critical thinking in the classroom and pay individual attention to each student via Internet, supporting his process of self-learning at home. This allows active participation of parents in the educational process, involving them directly in the personal development of children and makes the education more socially recognizable. The Strategy for Effective Implementation of ICT in Education and Science (2014-2020) adopted by the Bulgarian Government defines such set of unique measures, which, applied systematically and complementary, support quality education, facilitate access to e-content and encourage the creative potential of teachers.

3.1 Achieving economy of scale and equal opportunities

The Strategy has three stages and here's a list of some key measures:

I stage. Key investments (2014-15)

- national ICT cloud infrastructure for the needs of education and science;
- wireless (Wi-Fi) infrastructure in educational and scientific institutions;
- education portal and digital handbooks for all science and mathematics subjects.

II stage. Mobility and security (2016-17)

- permanent optical or high-speed connection to educational institutions;
- opening up of education and science environment to mobile devices (m-learning);
- integrated national education information and management system;

III stage. Universality and sustainability (2018-20)

- transition to digital textbooks for all subjects;
- virtual classrooms and laboratories;
- national system for online exams and external assessment;
- open and universal access to education and science resources.

Obviously the Strategy encourages educational innovation through application of ICT, which is understandable in the context of the personalized approach to students. Digitization of the educational environment provides equal opportunities for access to modern e-content, regardless of students' location, while the concentration of educational resources through cloud technologies leads to economy of scale, allowing bigger investment in customized training methods.

3.2 Expanding educational environment, new relations by means of ICT and Lifelong Learning

In practice, an entirely new educational environment and approach to the training process will be formed. Technology allows establishing creative interactions, which involve teachers, students and parents. Students are no longer limited to classroom boundaries and many new elements will come in the learning process through the use of platforms for tele-education, social networks and virtual reality. Students will be actively involved in the process, receiving opportunity to use more relevant tools to their mentality for interaction with the teacher - web, tablet, Facebook, etc. Technologies allow easier and unobtrusive way to balance the roles of teacher and student through creation of virtual bridges thus facilitating informal discussions. This will enable self-learning at home as long as there are more elements of interaction and fun involved, which provokes students to consider learning as a game, rather than as a social obligation. In practice, the education of the future will be ubiquitous and comprehensive and the transition to life will be much easier, as the need for training does not end with

leaving school. Once developed, self-training skills anytime and anywhere will make students more relevant to life challenges and social adaptation after the formal leave of the education system. Necessity for such continuous self-improvement follows us throughout our life cycle and is called "Lifelong Learning", which requires early adoption to such ubiquitous training skills.

4. Conclusion

The need for a serious reform in education systems is obvious and should meet the dynamics and technological development of societies. The application of modern ICT is one of the cornerstones of educational development, but it is very important to make it balanced, targeted and complementary. The ultimate goal is not to promote technology to automate the education, but to use ICT for personalized approach and creative understanding of educational content. The strategy of Bulgaria for effective implementation of ICT in education provides such opportunities, demonstrating clearly how an EU Member State can effectively intervene in the reform of education, making best use of public funding for the transition of society to a knowledge-based economy.

References

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