

Adapting the Education System to the Digital Generation

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Abstract: *This paper analyses the reasons why the motivation of the digital generation for acquiring and generating new knowledge declines. It argues that the main reason is the discrepancy between the expectations of the digital generation and the reality in our schools – primary, secondary and higher education in regards to the use of information and communication technologies. Possible solutions for overcoming this situation are described. The need of adapting the education system to the digital generation is justified.*

Keywords: *digital generation, innovative education technologies, interactive presentation system, e-learning, face-to-face learning, blended learning*

INTRODUCTION

In March in Lisbon the European council adopted a **Strategy for economic reform and social cohesion in Europe**. The main objective of this strategy, which should have been implemented by 2010, was that the EU economy should become the most competitive and dynamic **knowledge-based** economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion.

Was this goal achieved?

Instead of giving an answer we could recall that one of the main objectives of the Framework seven programme of the EU was again **knowledge-based** economy with sustainable growth. The goal of the European structural funds is the same – development of **knowledge-based** economy and innovations. The National strategy for the development of research in the Republic of Bulgaria, which is a derivation of the Europe 2020 strategy, aims at the development of the Bulgarian science which has to serve the **knowledge-based** economy.

Which were the reasons, which prevented the EU from achieving the goal of the Lisbon strategy on time?

The answer is simple - a **knowledge-based** economy can be built only by a society, whose members and hence the society as a whole has accumulated the so called „critical mass” of knowledge. Not least are the desire and the skills to apply this knowledge for the benefit of the society.

The work „Parallel lives” of the ancient Greek philosopher Plutarch describes that Alexander the Great, the ruler of the big part of the world at that time, valued knowledge more than the Emperor's title, more than the power and his conquests. He appreciated knowledge, because he was obviously aware that everything else is based on knowledge. He valued the knowledge to such a degree that when he heard that his teacher, the great philosopher Aristotle, had published his work „Physics”, he wrote to him: „Master, You deprived from the main thing, which made me different to all other people - KNOWLEDGE, by giving them access to it”. Despite his great respect to the philosopher Alexander the Great could not forgive Aristotle by the end of his life.

Today, when the knowledge is easily accessible by all, we notice a trend of declining motivation in young people to acquire this most valuable treasure. There are several reasons for this. The first is exactly that it is easily accessible – the fruit which one can pick just by stretching his arm is not a challenge. Another reason, on which this paper will concentrate, is **the discrepancy between the expectations of the digital generation and the reality in our schools – primary, secondary and universities, in regards to the usage of Information and Communication Technologies (ICT)**. The digital generation has been brought up with these technologies. It is also called the generation of the six screens – TV, computer, laptop, tablet, phablet and smartphone. When this generation gets into an environment, where the degree of using ICT does not correspond

to its expectations, it gets demotivated and redirects its attention and energy to other goals and objectives.

To summarize:

We want to build a society with a knowledge-based economy, in order to have a better quality of life, but we cannot achieve it. Why? Obviously, because the number of people with the required knowledge is not sufficient. Where do we acquire knowledge? Mainly in the schools – primary, secondary and higher education. And why the knowledge transfer from the teachers to the learners in the schools gets slower and less efficient? The answer to this question is the key to the knowledge-based economy and it is connected with the necessity of adapting the education system to the digital generation [1].

LAYOUT

At the end of 2013 the European Commission launched the initiative of opening up education through new technologies. Its main idea is that all individuals can learn anytime, anywhere, with the support of anyone, using any device [2]. This idea was planted in the project „Future Education and Training in Computing: How to support learning at anytime anywhere“, which started the same year [3].

The answer to the question „How to support learning at anytime anywhere“ is not so difficult. For this purpose we have to do the following:

- The Internet should „cover“ every corner of the globe;
- The Internet connection should become wireless and free;
- The internet connection speed should constantly increase, so that any type of information with any volume can to be exchange;
- The cloud technologies should continue to develop;
- The wide public and most of all the teacher and lecturers have to be introduced to and educated in these technologies, so that they can use them;
- Start intensive use of cloud technologies for training and education by creating virtual libraries and laboratories „in the clouds“;
- Use INTERNET OF THINGS and INTERNET OF EVERYTHING, as well as social networks for education;
- „Arm“ the pupils and students with mobile devices – laptops, tablets, phablets and smartphones;
- Show them the way to and teach them how to effectively use virtual libraries and laboratories;
- Motivate them to acquire knowledge and generate new knowledge.

Virtual learning environments (virtual library and virtual labs) enable learning at anytime anywhere. But the e-learning have got one major disadvantage – the teacher is separated from the students and as a result he/she cannot influence them with the power of his/her personality and charm.

This disadvantage can be partly overcome by creating virtual libraries of video lectures. Many such examples can be found in internet [4]. But the video lectures have also got a disadvantage – the link is only one-way.

The link could become both ways, if we use distance learning in real time, where the lecturer is in front of his/her office or home computer, and the students are in a lecture hall in another university, equipped with a projector with a speaker. The cheapest option is Skype. The lecturer connects to the laptop of the remote lecture hall using Skype, starts a PowerPoint presentation and selects a „Share screen“ mode. In this way the presentation is projected on the screen in the remote lecture hall, and in its upper right corner the students see the lecturer and vice versa. In this way we establish a bidirectional video and audio connection in real time.

However, if we want to use 100% of the power of the lecturer's personality, then we have no other choice but go back to the traditional Face-to-Face lecture. But how can we make such a lecture is more interesting for the digital generation? Of course by active use

of modern information and communication technologies. But here we must mention that these technologies are just a tool, which enables us to make the classes at the university more interesting. But they are not panacea, i.e. they are not a solution to all problems in the education system. The teachers will keep their leading role.

In order to make a lecture more interesting, it should not be like a dictation, but should have an academic and conceptual character. Which are the preconditions of such a lecture?

- There should be a textbook, written by the professor who delivers the course and his assistants, which is published not only on paper and electronic format, but also in a virtual library;
- The students should read the material to be discussed, before they go in the lecture hall using the published teaching materials;
- The lecturer has to prepare a PowerPoint presentation;
- An interactive presentation system (Figure 1) should be used, which converts the common white board into a big touchscreen which the digital generation knows and on which it concentrates its attention. The interactive presentation system makes the traditional „face-to-face” lecture much more informative and attractive. Equipping the interactive presentation system halls with laptops converts them in auditoria of the type „USB stick lecture“, which makes the live of the teachers easier and stimulates them to apply innovative educational technologies.

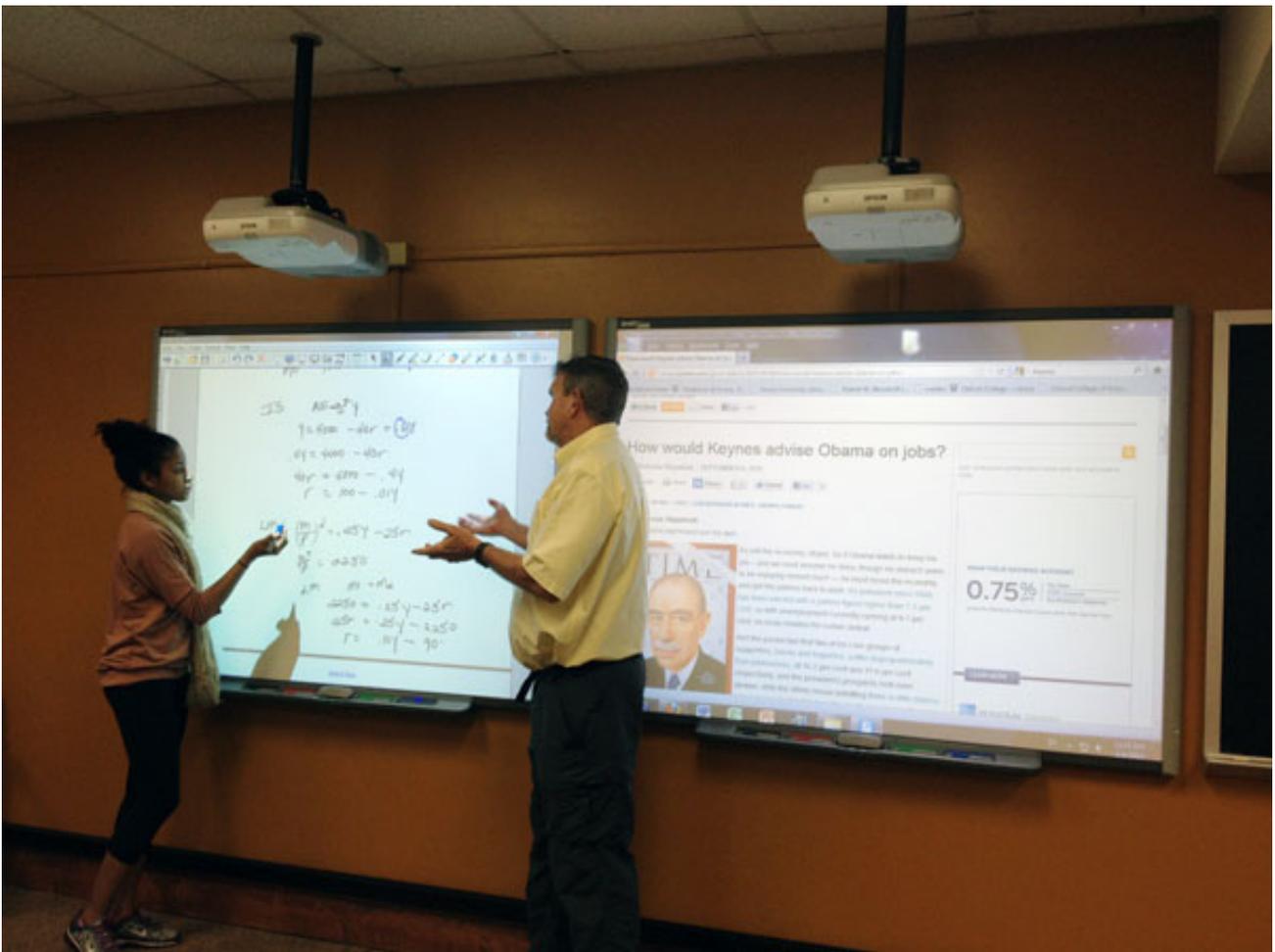


Figure 1. Lecture with an interactive presentation system

In order for the actual presentation to be interesting and attractive, it should also meet some conditions:

- Every slide should have a figure (or images) and little text, which just prompt the lecturer what to say;
- The lecturer should ask the audience frequent questions;
- He/she should periodically raise the mood in the whole with proper jokes.

The lecture must be more flexible. It could be made like this in the following ways: showing a short video about the trends in the developments of the subject area, thoughts of a wise man in connection with the taught material, a brief academic joke, etc.

During a Face-to-Face lecture the teachers more and more frequently face a problem – the smartphones. Almost all students have smartphones and they always use them to surf the internet and communicate even during lectures and workshop, which significantly reduces the efficiency of the academic classes. What to do? The easiest thing would be to prohibit the use of smartphones in the class. But there is another solution too – to involve them in the teaching process. Here is such an idea: develop a free application called "VIRTUAL PERSONAL ASSISTANT" (PA), which every student installs on their smartphones. When activating the application offers the student to select a PA. The student can select an avatar of a real person, for example the rector of the university, faculty dean, head of department, a favourite film character, etc. After that the PA asks for a faculty student number and after it is entered downloads from the university network class schedule of the student's group. From that moment on the PA discretely reminds the student of forthcoming lectures and workshops, proposes to visit the virtual library to prepare for the classes, takes him to the necessary room, proposes a schedule for working on course assignments, reminds of deadlines, at the weekend proposes entertainment programme, e.g. discotheques, programme of a cinema, theatre, opera, etc.

But face-to-face learning doesn't allow learning at anytime anywhere, which is a task set by the European Commission. So, quite naturally, we arrive at the idea about blended learning, which combines the advantages of the Face-to-Face and Online Learning (Figure 2).

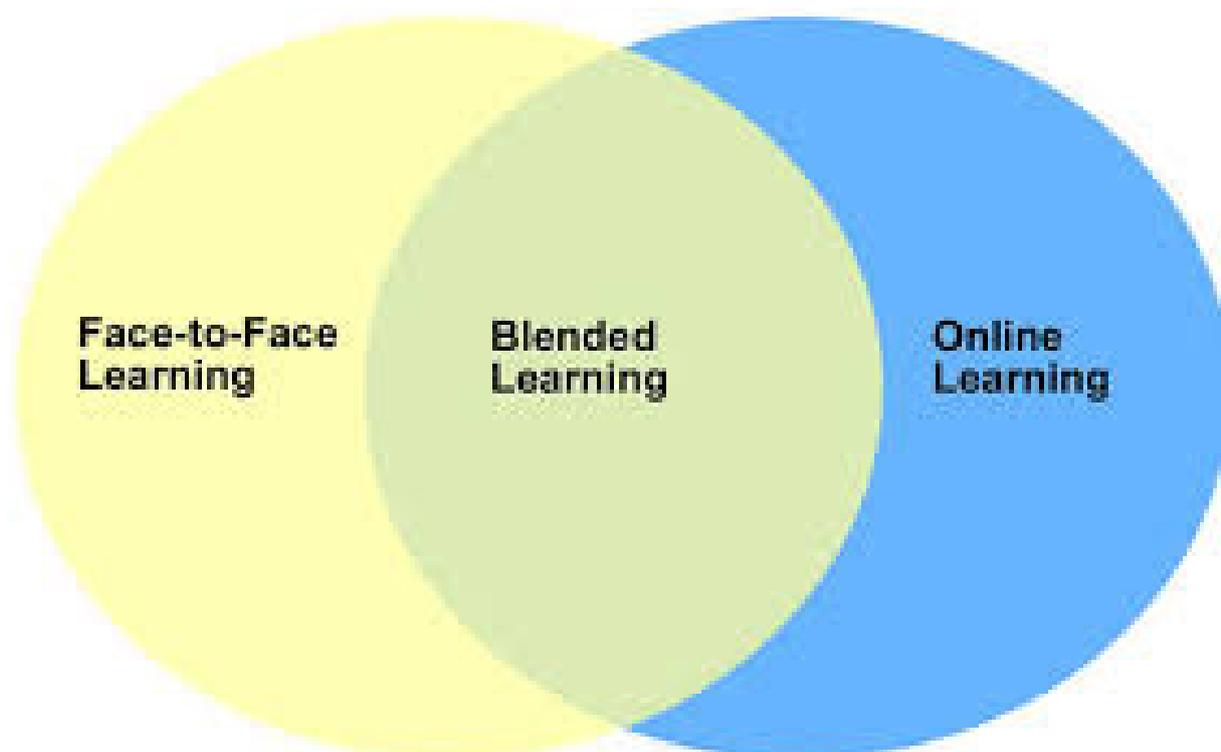


Figure 2. Blended learning

But with blended learning one asks the natural question, what part of the teaching material should be taught Face-to-Face and what part assigned to the students as Online Learning? Here is a possible easy solution – at the lectures the fundamental questions in the corresponding subject area are presented and discussed, and the details the students learn from the virtual library.

CONCLUSIONS AND FUTURE WORK

The attractive power of the education system and its benefit for the society will become much bigger, if it offers opportunities, which exceed the expectations of the digital generation. As above mentioned these expectations concern mainly the active and effective use of most recent information and communication technologies in the education and training process. But herein we would like to mention that although these technologies are a factor for a change in all spheres of human activity, they are not a panacea for solving all problems in the education system – they are just one of the main preconditions for finding an efficient solution.

The activities at the University of Ruse directed to the adaptation of the education system to the digital generation are based on the concept that e-learning is not an alternative to the traditional learning. These two forms have to merge and complete each other, and the leading role of the teacher and the lecturer has to be sustained and strengthened. But with the development of the information and communication technologies, the role of the innovative education technologies and in particular e-learning will continuously grow, because they give the chance to ANYONE to learn at ANYTIME and at ANY PLACE, with the help of ANY LECTURER and using ANY DEVICE – laptop, tablet, smartphone or phablet.

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