Five Trends of Educational Change: Reshaping the Humanity with Global Network Tools

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Abstract

The paper is aimed at exploring the change in educational paradigm with respect to the Internet technologies. It defines five major trends that lead to emerging the global system of education. The authors discuss the possible ways to deal with the changes on the local and global scale.

1. Introduction

The growth of the Internet during the recent years has become a significant factor of social, economical, political, and cultural life of the humanity. More than one third of the world population has become Internet users (according to the Internet World Stats site).

This article is aimed at defining and discussing current trends of the global educational change with respect to the Internet. In our opinion current major change in education is a step to the new global educational system. We believe that it can transform the modern society.

Most countries in the world are getting through the process of integrating the information technologies into their national education systems. This integration is a necessary step towards what we call "information society" or "digital society". This theoretical construction that has been developed in the recent decades and implies such key educational concepts as information literacy [1], lifelong learning [2], and collaboration [3].

Defining the trends of the global educational change we have to take into account that the Internet challenges the traditional systems of education in several ways:

- The requirements of the society and business to the human capital now include competencies related to the extensive use of the Internet technologies, information literacy and productive forms of collaboration. Meanwhile it is increasingly difficult to work out a new set of educational standards for the changing environment.
- Though the emerging technologies are replacing some of the social and educational functions of schools, they are providing schools with new tools. Those who take risks are able to participate in a continuous set of experiments as most of these tools are being developed and tested on the fly.
- Various forms of distance education and e-learning have made education available to the large number of people regardless of their physical location, age, gender, etc. Thus, schools and universities have to develop new learning practices based on these technologies and they face global competition.

Today numerous international educational initiatives in the Internet are supported by national governments, international organizations, NGOs and NCOs, various types of national and international businesses and other types of global actors. There are also groups of individuals who volunteer over the Internet and unite in self-organized learning and teaching communities.

The big question is about what they are bringing into our world.

Our objectives as the researchers are:

- to define some trends of global educational change by analyzing current practices of international Internet-based initiatives and
- to raise the discussion on their possible impact on education globally and their potential to cause significant social change in future.

2. Research methods and technique

As this research is aimed at defining major trends of global educational change it is being performed by observing and analysis of the current practices used by the Internet-based educational initiatives. That is why the research data comes from a large number of sources from all over the world: web sites of international educational initiatives, especially forums, educators' blogs, communication with the members of teaching community based on Skype in the Classroom global initiative, observing the major MOOC web sites (coursera.org and edX.org) as well as our personal four year experience in teaching through the Internet. As most of that data is hard to be structured in quantitative format and verified in that way, qualitative evaluation is being used as a main technique. At this stage we consider our findings to be hypotheses.

3. The five trends

We consider the following trends to be significant for the national systems of education as they may become the basis for the emerging global educational system:

1. Massive open online courses (MOOCs) provide either free or relatively inexpensive education that can be compared to traditional face-to-face forms of learning in terms of quality and effectiveness of training. During the recent years, being based on the latest Web 2.0 technologies, they have became one of the major trends in distance education. Such courses, especially college-level ones, can easily start working as powerful human resource management tools and effective employment filters for global actors (states and corporations). The extensive use of MOOCs can be potentially dangerous to national systems of education and to local employers in less developed countries due to the fact that they can simplify the mobility of human resources to different parts of the world. Such initiatives as Khan Academy, Coursera, edX with millions of users worldwide prove that large numbers of people can be involved in transnational educational process in a relatively short period of time. Massive open online courses are pushing national educational systems to urgent change so that they can face this global challenge.
2. Emerging self-regulated educational online communities rely on the technologies and web services that provide peer-to-peer communication and interaction. They can congregate around social networks, forums, blogs, micro-blogs, podcast sites, video-on-demand services, wikis, and even around audio and video conferencing tools (such as Skype and Google Hangouts). These virtual communities have most of the features of the constructivists' "communities of inquiry" but they can often utilize non-systemic "crowdsourcing" approach to communication, organization and learning. These communities emerge either in response to some specific educational needs, or just as a result of sharing common views and ideas among enthusiasts. Their members take part in multiple peer-to-peer individual of group learning practices. Online volunteer teaching

and online educational collaborative projects have become popular and are expanding rapidly. Their members share cross-cultural and cross-disciplinary educational experience with their audience. Our two-year experience of participation in one of such online communities together with 150 international educators has proved that these forms of collaboration can provide various types of effective educational activities.

3. Creation and utilization of open knowledge bases such as Wikipedia is a part of the new educational reality. Wikipedia has become an outstanding example of successful global knowledge-sharing project based on crowdsourcing ideology. Though there can be multiple ways of using knowledge bases, that are potentially harmful for the traditional academia (online banks of quiz answers and written assignments, massive plagiarism, common source of answers to most questions, etc.), these tools can serve to create and organize domains of knowledge for individual and group learning purposes. On a global scale the positive way of using this technology is that it can become the basis of better mutual understanding and agreement on multiple topics. In the long run it can be the source of building a universal ontology with a developed system of categories and classifications. The positive or negative aspects of such powerful tools can be debatable.
4. The main foundations of modern educational philosophy are moving from constructivism to connectivism. While the first one puts an emphasis on individual knowledge and skills acquired through gaining social experience, the second one focuses on collective knowledge developing though growing of the network. We agree with the statement that "Connectivism allows the future of education to be viewed in an optimistic, almost utopian perspective, as individuals co-create knowledge in a global, networked environment" [4]. In this new setting teaching can change its meaning and become either a motivation and facilitation activity for face-to-face classes, or an art of online consultation and a mediation service. Connectivist learning in our opinion can be the core of the knowledge society.
5. Education becomes a highly fragmented process of utilizing a constantly changing set of tools alongside with shifting roles of the individuals who participate in it according to their interests and abilities. As modern learners utilize global educational services they can choose out of many alternatives. They can learn at any time and at any place. Learning becomes virtually an "on-demand" service. A learner's educational experience is a unique self-made product based on numerous choices made while moving along the individual learning path. The limits of this process are the time available for the learning activities and the technical facilities. This specifics of the modern educational process requires new forms of tracking a learner's individual achievements. It is also a challenge to the educational standards. Individual learning paths can be traced either through an online portfolio of the learner or through his/her social network profile with a timeline that would present participation in some relevant activities and projects that can be viewed as milestones of the personal and professional development. On this way motivation for global competition and global activities becomes inevitable. Most of the today's learners have the whole spectrum of opportunities to compare their skills and knowledge with their peers in various international projects. After being graded on a global scale there is no way to avoid the knowledge of belonging to the global educational community and to get back to the local scale.

4. Local perspectives: a view from Russia

Russian education inherits most characteristic features of the outdated Soviet educational system. In our opinion its most important differences from the US are the following:

- the system of education mostly relies on public schools and universities: according to most recent information available on the *Russian Educational Statistics* website the absolute majority of children (more than 99%) attend public schools, and the majority of students (more that 85%) attend public universities [5],
- there are federal standards for all the levels of education which makes educational system highly unified and dependent on the decisions of the federal government,
- both school and university students have very few elective courses in their curricula,
- academic culture is relatively conservative and does not motivate students for fair and responsible learning and independent decision making.

Currently the college and university education in Russia is being transformed to meet the requirements of the Bologna Agreement that makes the national system of education closer to the European standards. For example, the European system of academic degrees and grading system has been recently introduced in Russian universities. But there is still very much local specifics that make Russian education very traditional and hard to change.

However, the global trends have already made this change inevitable:

1. The trend that currently has the strongest influence on Russian education is emerging of open knowledge bases where learners can share information and publish the results of their intellectual work. The influence of such online resources is ambivalent:
    a. On the one hand due to extensive information sharing among students the level of plagiarism in Russian school and academia has raised to an extremely high level and it has currently become a threat to the quality of professional education in Russia [6].
    b. On the other hand the tendency of sharing the latest information among people and creation of such popular knowledge bases with structured content as Wikipedia make students aware of topics that are not represented in Russian language through other media. Different points of view that can be introduced in the process of collaboration and they encourage multiple discussions. Even the topic of growing plagiarism has made a positive impact on Russian academic culture because it has drawn public attention to the unresolved problem and now the large audience, including the Russian Ministry of Education and Science, is working on a solution [7].
2. The second important trend for changing Russian education is self-regulated online learning communities. In our opinion, the traditional collectivist culture of Russian society can be strongly influenced by such way of learning and sharing educational experience. During the recent few years Russia is experiencing the boom of blogging, social networking and other Web 2.0 services. Social media have become a part of modern academic culture. Self-regulated communities appear in all the social spheres: politics, culture, trade. Education is not an exception. Learning communities appear in *VK.com* that is the most popular social network in Russia and on professional community websites, such as *Habrahabr.ru* for IT professionals. Meanwhile, educational websites are not so popular in Russia. Global educational initiatives are also not very common due to the limited number of English-speaking population. Nevertheless, Russian government is trying to stimulate growth of educational initiatives on the Internet and even uses

crowdsourcing methods in legislation. For example, the new Law on Education was published as a draft in 2010 for open peer review and online discussion.

3. The third trend that can be the reason of a big change in Russian education is the MOOCs. Currently, there are very few massive open online courses available in Russian and their effect is not significant. But even courses in English can be viewed as a potential threat to the national system of higher education. There are several reasons for that:
    a. Students and professionals demonstrate growing interest to the MOOCs and try to use them to improve their knowledge of the subject and their language skills. We think that when popularity of such courses grows they can become the reason of brain drain from Russian educational and labour market as the most talented students will have more options to choose and more opportunities to prepare for educational or professional immigration. If MOOCs will be available for school curricula they can cause even bigger consequences.
    b. Being involved in MOOCs students compare the content and the curricula of the courses from the top world universities to what they can get at their home universities. This comparison raises justified demand for better quality from their national system of education and draws Russian education into competition with global trendsetters. Russian educators have already started discussion about the potential threat of global education and necessity to preserve the national education.
    c. Traditional Russian academic culture is being influenced by the standards of the online courses as students bring new vision of learning into the classroom. Those who have participated (even tried) online learning become aware of pedagogical approaches other than the ones they have in their home country.
    d. Professional community (at least in the IT sphere) is discussing the necessity of MOOCs as a prospective tool for professional development. This discussion has not become extensive yet, but it can grow with the expansion of online courses and their availability in Russian language.
4. The fourth important trend is the very idea of "on demand learning" that implies the concept of individual learning path. Russian education, as it was stated above, has very paternalistic pattern: students have few elective courses and the educational process is based on completing the state (federal state) requirements for every level of education. The existing subject-centered approach makes the learner a passive recipient of knowledge and develop a predetermined set of skills required by the national educational standards. Online learning opportunities give Russian students educational freedom that can help them think about variety of options and make choices. We would rank this trend as the most important but only after there are observable achievements. The process of change has just started.
5. The fifth trend, the connectivism, has deep roots in Russian pedagogy and philosophical tradition. That is why we think that the emerging philosophy of online learning communities and the tools for effective collaborative learning can match Russian cultural specifics without causing an IT culture conflict described by Dorothy Leidner and Timothy Kayworth [8]. On the other hand the students' passion for online collaboration and interaction needs to be adequately understood by national education stakeholders and properly supported by the national educational community. The young generation

of Russian learners who fall under Marc Prensky's definition of "digital natives" have to learn according to the rules and standards developed by "digital immigrants" who are not completely integrated into the new digital culture [9]. This can be the reason of a major cultural conflict in Russian society. A lot of social and political events in modern Russia make us think that this conflict is already developing.

5. Personal experience

These five trends guide us in our professional life which makes us agents of the global educational change.

Since 2012 we have been participating in several MOOCs and consulting our students on the topics related to this global initiative. We are also carefully observing the public reaction to MOOCs in Runet (Russian Internet) and among our students. The information about MOOCs in the news, blogs, social networks, discussions demonstrates growing public interest to the topic. Our long-term goal is to urge Russian educators to participate in this global initiative providing their courses to the international educational audience in English language and to make massive open online courses available in Russian language. We think that if MOOCs were officially recognized by the national systems of education they could become a source of full scale educational collaboration of nations.

We have also been active participants of an international online community called "HLW Skypers" that includes more than 150 educators from different countries. The main goal of the community is to share professional experience and provide online classes exchange via Skype and Google Hangout. There are numerous international initiatives inside the community such as videolectures, blog and website competitions, peer tutoring, etc. The community started in 2010 through the means of the professional social network *Skype in the Classroom* and has grown into a full scale collaboration project. We participate in other educational communities based on social networks and forums discussing professional topics, sharing experiences and exchanging resources.

Utilization of open knowledge bases is a part of our professional life because most of our students use Wikipedia and similar web resources on regular basis. To help them find, understand and assess the information from open sources we have to include them in our curricula. Moreover, we encourage our students to use Wikipedia as the platform for their projects (writing and verifying articles, doing research on topics related to Wikipedia and its rules).

Working with students who belong to the digital natives generation is often a challenge for us because our students have naturally become a part of the global social network where individual knowledge and personal emotions are shared with enormous speed. A learner on the network is more than an individual learner. From the social networks perspective an act of sharing and exchanging information is equal to the process of creation. Sharing an idea becomes an act of collective thinking. Supporting this idea becomes an action. We, as teachers, can be a part of this network, helping individual ideas grow into an unbelievably complex intellectual process. In our opinion it is extremely important to support this philosophy of collective thinking. Connectivism may bring a global shift to the human society.

Nevertheless, an individual can face a problem of finding his/her learning path in the chaos of multiplication of knowledge. Our students, especially school children, struggle with growing information flow. In Russia we have overcome digital divide for significant part of

the population, but the new problem for the students of the Information Age is the lack of time. There is growing inequality between those who have time to use open educational opportunities and those who are either overloaded with multiple tasks, activities, extra courses or simply have no time management skills. We are trying to find tools that can help them cope with both problems. The other challenge is to make the individual learning path traceable and officially recognized. This is one more important task for us as educators.

6. Recommendations

To meet the current challenges the national systems of education should be open to the global opportunities that emerge due to the new technologies. We believe that building the information society, the society of knowledge can be based on open and equally available education. That is why we suggest the following set of recommendations:

1. First, the national systems of education should actively participate in such international initiatives as MOOCs and start their own national and regional courses. This is the only way to promote proper level of localization and protect national interests without staying off the mainstream development of educational technologies. The regional and national alternatives to the existing projects are necessary.
2. Second, we need to initiate an in-depth research of self-organized educational online communities as they are becoming an important part of global education that can either compliment or oppose the national and global systems of education. Some of such groups can become a part of students' and teachers' training curricula.
3. Third, as open knowledge bases are having large impact on learning process, we need define their place in individual and collective thinking, work out proper use policies for academic purposes and integrate them into our education process. Such bases are usually perceived as a threat to the traditional academia but they are effectively used in some innovative courses and by the self-organized learning communities.
4. Fourth, motivation for global competition has already become a part of modern life. National systems of education would gain much more if they could be more active in international and regional collaborative projects.
5. Fifth, some elements of non-systemic education, the variety of on-demand learning activities should become a recognized part of educational process and be included into certified programs and curricula after having a proper level of evaluation.

7. Conclusion

The new paradigm of education relies largely on innovations in the IT sphere that have become available in the recent decades and have introduced new models of interpersonal activities and group interactions. These models are introduced on IT market and are quickly adopted by consumers through social networks, collaboration tools, management tools, and various popular Web services. Some educators have already started using these tools in their practices at their own risk and without integrating them into the official school programs. National systems of education have only few years left to transform and meet the requirements of the Information Age. We think that it is the time for a big change.

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