



# Distance learning as an instrument providing availability of the higher education to students with disabilities

## Distance learning as an instrument providing availability of the higher education to students with disabilities

Mikhail Viktorovich BOGUSLAVSKY [1](#); Tatyana Albertovna NAUMOVA [2](#); Egor Valentinovich NEBORSKY [3](#)

Recibido: 26/10/2017 • Aprobado: 25/11/2017

### Contents

- [1. Introduction](#)
  - [2. Distance learning at the present stage](#)
  - [3. Pedagogical technology of training of persons with special educational needs](#)
  - [4. Results](#)
  - [5. Discussion](#)
  - [6. Conclusion](#)
- [Acknowledgements](#)
- [References](#)

#### ABSTRACT:

The paper deals with the research of distance learning as a means of the higher education accessibility provisions for the people with physical disabilities. The two stages of the research are the following: revealing of features of individuals with physical disabilities which can influence training process, and developing and testing the educational technology providing availability of distance learning. The study undertaken found that students with disabilities choose training self-consciously, at that they do not seek for the competition or integration. In order to increase learning efficiency and reduce risk of expel of such students, the research group developed and approved specific educational technology, including educational forms, methods and tutorials. During the research it was confirmed, that application of the given educational technology results in the learning efficiency increasing.

**Keywords:** higher education; distance learning; students with specific pedagogical needs; pedagogical technology.

#### RESUMEN:

El documento trata de la investigación del aprendizaje a distancia como medio de las disposiciones de accesibilidad para la educación superior para las personas con discapacidades físicas. Las dos etapas de la investigación son las siguientes: revelar las características de los individuos con discapacidades físicas que pueden influir en el proceso de formación, y desarrollar y probar la tecnología educativa proporcionando disponibilidad de aprendizaje a distancia. El estudio realizado constató que los estudiantes con discapacidades eligen entrenarse conscientemente, en que no buscan la competencia o la integración. Para aumentar la eficiencia del aprendizaje y reducir el riesgo de expulsión de tales estudiantes, el grupo de investigación desarrolló y aprobó tecnología educativa específica, incluyendo formas educativas, métodos y tutorías. Durante la investigación fue confirmado, ese uso de la tecnología educativa dada resulta en el aumento de la eficacia que aprendía.

**Palabras llave:** educación superior; aprendizaje a distancia; estudiantes con necesidades pedagógicas específicas; tecnología pedagógica.

## 1. Introduction

The higher education represents an effective tool for acquisition of professional skills and possibility of economic employment though, certainly, it does not guarantee future employment of a student. Nowadays demand for the higher education, as well as its cost, continues to grow, both all over the world and in Russia.

Distance learning is actively developed in Russia, as all over the globe. This development depends largely on formation of information society, humanization of education system in the whole and also on information and telecommunication technologies implementation in educational system. However, the researchers demonstrate different attitude to this education form, choice of tutorials and roles of a teacher and a student in the course of distance learning.

The purpose of the present research is studying distance learning as a means to ensure the higher education availability to the individuals with disabilities. Monitoring, study of educational programs and teaching materials, electronic technologies of disabled people training, consolidation of information of various sources and also practical approval of active methods make up the basis of the present research. The following questions are the subject of the major interest of the research group: What are the specific aspects which are to be considered at organization of distance learning for people with disabilities? What optimal ways of the process organization should be chosen? How to choose training apparatus steadily increasing efficiency and effectiveness of training? In the course of investigations the research team came to the conclusion that increase in efficiency of distance learning is possible under a number of conditions which can be classified generally as educational technology of training of students with special educational needs.

---

## **2. Distance learning at the present stage**

At the initial stage distance learning represented training at which the student corresponded with educational institution by mail: received the tasks on special forms, filled them up and sent back.

Distance learning at the present stage includes online education with the use of MOOCs (Massive Open Online Courses), SPOCs (Small Private Online Courses) and social media (Kaplan and Haenlein 2016). Training extends beyond the traditional classroom. In social media, learning communities are created where training process takes place (Manca and Ranieri 2016).

Information technologies transform the whole format of educational activity of the universities (Boguslavskii and Neborskii 2016). We can observe active attempts to legalize electronic educational courses in the diplomas of university graduates (Beckle 2016). Numerous of platforms, such as Coursera, AcademicEarth, edX, iversity, which are regarded by some experts as competitive or alternative forms of higher education, arise and develop (Sanchez 2013). In Russia there are similar platforms (Lektorium, Universarium, "Uniweb"). Their development can also become not only an alternative education source, but also an incentive for attraction of foreign students.

At the same time, there is the other point of view. Its supporters claim that MOOCs courses cannot be an alternative to the traditional education (Pope 2014). One of key points in this discourse is the interaction of a teacher and a student. Many opponents of electronic training claim that it is impossible to replace direct human communication with computers (Cerr 2012). Poor outcomes in the field of language studying, in time-management and the worst skills of self-training considered to be another disadvantage of such training (Xu and Jaggars 2011).

On the other hand, there is a definite contingent of students with disabilities and with special educational needs. Students with disabilities form one of the target groups of distance learning when attending lectures is unnecessary.

### *Features of students with disabilities*

At the repletion of educational needs the features of the academic discipline as well as the features of activity of the students with various level of basic knowledge, cognitive peculiarities of personality of the students with disabilities should be taken into account. One educational group can include students with high level of basic training and those who meet only to the minimum level of qualifying standards. It is typical for people with disabilities having problems with getting an education at high level.

Developing training courses it is necessary to consider psychology and educational features of such student's group (Roberts, Crittenden and Crittenden 2011). In order to select optimal forms, methods and ways of training the research group have studied cognitive peculiarities of the students and their motivation to training.

Students of the Law department of distance form of education of the Udmurt State University (Russian Federation, the city of Izhevsk) took part in the research. All the students are disabled, i.e. belong to the group of people with special educational needs. This group includes people with various diseases: there are persons hard of hearing, visually impaired persons, and disabled people with systemic and locomotorium diseases. Therefore, developing methods of distance learning instruction it is necessary to consider features of each student, selecting the corresponding methods and ways of training.

Motivation analysis was carried out by means of several techniques: motivation of training in higher education institution (technique of T. I. Ilyina), the technique of studying of educational activity (variant II) modified by A. A. Rean and V. A. Yakunin. The research of attention stability and dynamics of working efficiency was conducted by means of the test "Tables of Shulte". The Raven's test was the tool of logical thinking research. The review of educational opportunities for students (region of student's living, ability to come for training at the university, available resources for receiving the higher education and level of English for training in foreign universities) was in addition carried out.

During the research it was ascertained the following:

- students with disabilities chose university education consciously (in accordance with the technique of T.I. Ilyina the maximum indicator was on the scale "Acquisition of knowledge");
- students with disabilities seek for obtaining knowledge, at the same time they do not express the rivalrous aspect at studying or integration with group of students (in accordance with the technique of A.A. Rean and V.A. Yakunin the maximum index was on the scale "To gain profound and strong knowledge", the lowest – on the scale "To set the example of fellow students", "To achieve approval of parents and people around");

- students with disabilities have rather standard mental tolerance of attention (the indicator in group made from 0.88 to 0.97 at standard value of 1);
  - students with disabilities have the average level of intelligence (the indicator in group made from 37% to 74%, one examinee showed the result of 79% – "intelligence exceeding average level");
  - students with disabilities, as the review of their educational opportunities showed, have practically very few ways of receiving the higher education, one of them being distance learning.
- 

### **3. Pedagogical technology of training of persons with special educational needs**

At the core of the offered technology of training there is a technology of distance learning in combination with the technic of stage-by-stage formation of intellectual actions, full acquisition of knowledge, split-level training, problem training. The experiment was carried out in the conditions of the prevailing use of remote educational technologies. Students did not attend classes at university which is allowed by the State educational standard of Russia.

At the initial stage of the research some educators used to traditional methods of work in audience had psychological barrier as they could not see the student sitting at the desks. They constantly set the questions of the sort: "How are we to check the student's work?", "We do not see their eyes and cannot control the learning process. Chat creates only the visibility of an interactive work".

The courses were developed and applied in educational process. All this occurred according to the offered scheme on creation of an electronic course. As the instrument of activation of training process there was chosen the "Developing Critical Thinking through Writing, Reading and Research" technology developed in the mid-nineties by the American teachers (D. Steel, K. Meredith, Ch. Temple and S. Walter) (Crawford, Saul and Mathews 2005). In the USA from the 1980th, and in the European countries from 1990th years the development of critical thinking became one of main objectives of education.

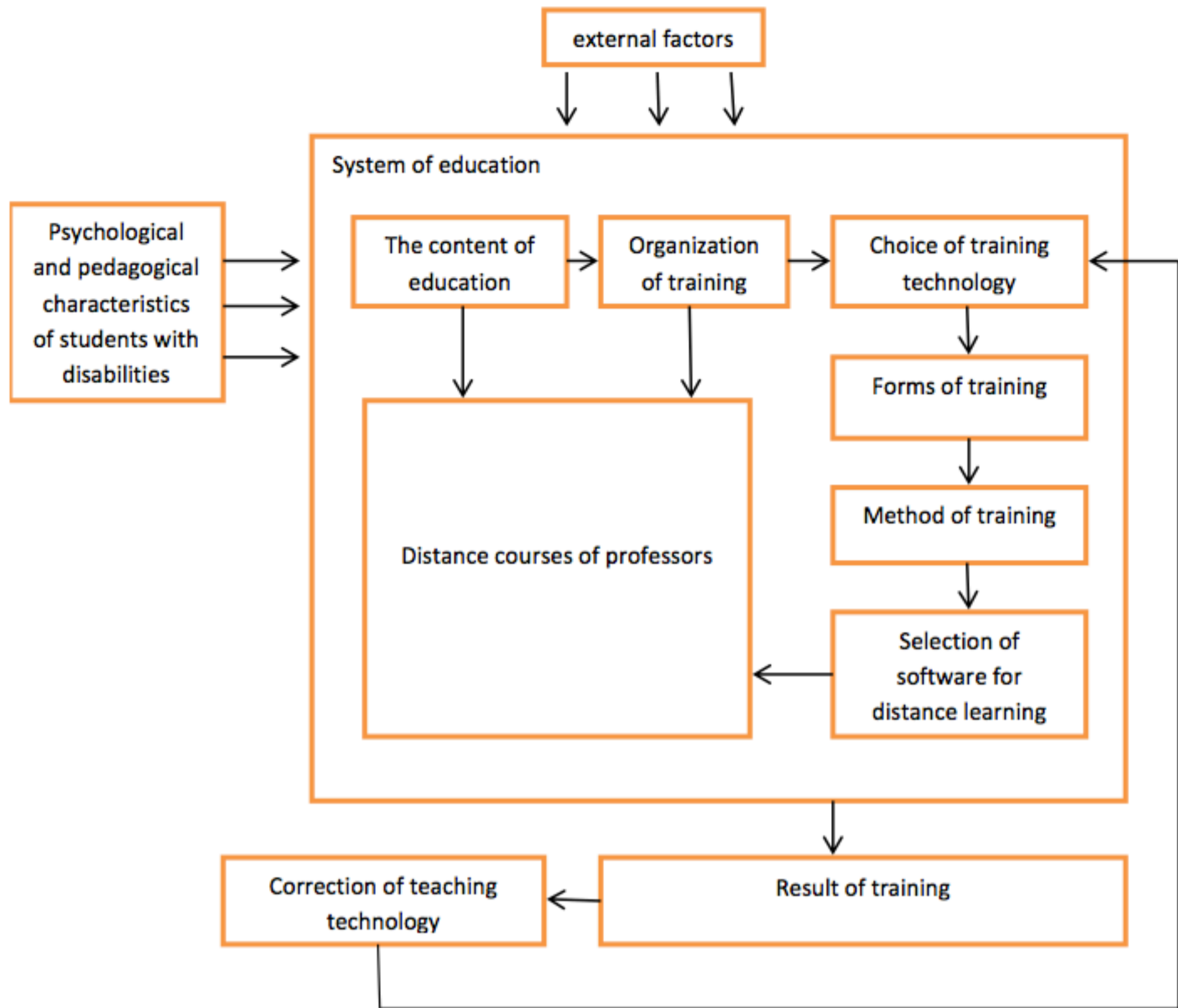
The research group considered this technology to be the most acceptable for the remote training conditions. According to the works of modern teachers and psychologists critical thinking is defined as "reasonable, reflexive" thinking" (Braus 1994) which allows to argue objectively and to act logically according to common sense, gives the chance to analyze a phenomena from the different points of view and give up own prejudices, to turn to new opportunities of problems solution. Importance of knowing facts, laws, historical dates and events is obvious, but ability to work with information consciously, to identify the main ideas, to see interconnection between them, to chose necessary and reject incorrect information, i.e., to analyze and estimate it becomes important as well. This approach can prepare students for their future practical activities in the emergently changing world.

At the *psychological level* the critical thinking develops an active joint goal-setting, active critical perception of material and reflection updating. From the point of view of an educator the critical thinking demands intelligence in use of various methods of work. Its technological basis represents three-stage model: "call (evocation) – realization of sense (judgment / realization) – self-consciousness (cogitation / reflection)" which allows to help students to define the learning objectives, to carry out active information search and to reflect upon the gained knowledge.

During their work in accordance with this model students use various ways of information integration, learn to develop their own opinion on the basis of judgment of various experience, the ideas and concepts, form conclusions and logical chains of proofs, express the thoughts accurately, clear for others, confidently and civilly.

At the *methodical level* the technology represents the system of practices and strategy uniting the modes of work by types of educational activity irrespective of concrete contents. The basic model sets certain logic of lessons creation, as well as the sequence and ways of a combination of concrete methodical techniques.

**Figure 1**  
Pedagogical technology of students with disabilities training



## 4. Results

During the experiment the technology of training of students with disabilities (Figure 1) included the following forms, methods and tutorials (Baranov, Vytovtova and Naumova 2014):

1. Forms: frontal, group and individual activity.
2. Methods: interactive lecture (active learning method), analysis of situations (case study), portfolio method, discussion (class discussion), problem training (PBL – Problem-Based Learning), design training (project method), brainstorming and method of Six Thinking Hats (Bono 2013).
3. Means: electronic educational resources (the training courses developed by teachers for the work on the Adobe Connect platform, system of electronic training at the Moodle platform), presentations and educational movies.

At initially high level of educational motivation the students showed the tendency to its growth after the experiment (3%). At that there was indicated considerable growth of informative activity (48%) and strengthening of interpersonal relations (10%). So, if before the use of experimental technology of training only the motivation, as previously stated, had a high index, then after its application high indices were received by both informative activity and the interpersonal relations. It is very important for training in the conditions of distance learning.

In order to confirm the efficiency of the offered training technology there was applied mathematical statistics, i.e. T-criterion of Wilcoxon for estimation of orientation and expressiveness of shifts in the same group of examinees in two different conditions – before use of the technology and after it.

For the motivation  $T_{emp} = 9.5$  at  $T_{crit} = 2$  at the 5% level of the statistical significance allocating in the zone of index unimportance. Informative activity  $T_{emp} = 2.1$  is a significant index.

The indicator of interpersonal relations  $T_{emp} = 1.95$ , i.e. this **indicator** is in the zone of uncertainty. But still it is close to  $T_{crit} = 2$  at the 5% level of the statistical importance that grants to us the right to consider it to be a significant indicator. Therefore, it is possible to claim that intensity of shifts in the typical direction does not surpass intensity of shifts in the atypical direction.

Thus, the offered educational technology of distance learning of students with special educational needs based on achievements of information technologies in combination with active methods of training is optimal for this educational group.

---

## 5. Discussion

The undertaken study showed that the traditional higher education is hardly accessible for people with disabilities under the existing conditions in the universities taking part in the research. Distance learning is one of the main means for ensuring availability of the higher education to people with disabilities. At the same time, it was stated, that students of special category have special educational needs, their motives differ from motives of students of full-time department. However, forms, conditions and techniques of training used in distance learning contradict certain needs disabled people have. They even may lower down the level of training efficiency and worsen the learning outcomes of some of them.

The conducted research showed that, despite emergent growth of information and telecommunication technologies and their implementation in the sphere of the higher education, methods of instruction applied in distance learning of students with disabilities are not sufficiently developed. In the existing systems of distance education physical violations and psychophysical features of students with disabilities are not considered. Before organizing distance learning of students with disabilities, it is necessary to estimate their level of readiness for this form of education. Possibility to choose the most convenient tutorials depending on physical violations, usage of compensatory technologies of training and individual control of the information environment of distance learning also have positive influence on the proficiency of students with disabilities.

The best learning outcomes were achieved by those students who studied not only in interaction with a teacher, but also communicated with the other students; therefore we are to do our best in illustrating the importance of cooperation and encourage students to start cooperation.

Moreover, many lecturers do not know how to deal with the student with disabilities, how to explain educational material and assess the work of such student (Sukhai and Mohler 2016). It is important to carry out the individual attention to the students, taking into account physical violations including dispensing of academic loads, application of special methods of training, use of technical means of training (Boguslavskii and Neborskii 2016). The offered pedagogical technology of training of students with disabilities allows actively include students in training process, considering their educational inquiries and requirements.

Distant learning is one the most important means of providing availability of the higher education to disabled people. That particular category of students is the most active in the sector of e-learning. Progress in technology lets to increase tuning of instructional setting in accordance with the needs of each student with disabilities.

Compensation of physical disorders of a student with disabilities is to be one of the most important tasks. For example, it is important to create geometrical imagination for visionless people by designing of 3D models. Congenitally blind do not know how people, animals and plants do look. Another important task of distant learning will be social integration and complete inclusion of a disabled person into the community.

---

## 6. Conclusion

Distance learning plays a great role in ensuring availability of the higher education to disabled people, allowing them to study at home, choosing independently the speed and intensity of training depending on the state of health, using the most acceptable tutorials depending on physical violations.

In the course of the present research it was shown that to increase the training process efficiency of the student with disabilities, it is necessary to consider the following aspects:

1. It is desirable to divide material of a course on obligatory for studying by all students and studied profoundly for choice. At the same time it is better to accompany the material studied for choice with comments on spheres of its application.
2. The hierarchical system of modules which defines a possibility of transition from one part of a training material to another has to be built. It allows students to design an individual trajectory of training not changing the structure of a course.
3. The maintenance of a training course has to provide different means of presentation of the material taking into account the leading channel of perception. Such way of representation of material allows to consider features of informative requirements of various categories of persons, first of all, with health disabilities.
4. The maintenance of a training course has to provide different degree of complexity of material presentation taking into account the level of basic preparation.
5. The maintenance of a training course has to provide forms of control and self-checking of development of a training material.

Thus, when developing educational technology of training of the students having special educational needs, it is necessary to consider that the problem of an educational methodological support of individualization of training is potentially solvable. However, it demands rather high labor and financial investments.

## Acknowledgements

Authors thank Baranov A.A. and Vytovtova N.I. for their help in experiment and all the students, who kindly agreed to take part in the present research, for their cooperation, courage and commitment in knowledge acquisition.

---

## References

- Baranov A.A., Vytovtova N.I. and Naumova T.A. (2014). Features of the development of distance learning courses for students with specific pedagogical needs. *International scientific-practical conference "Innovations in science, technology and the integration of knowledge"*, London, pp. 129-136.
- Beckle S. (2016). HE alliance to pilot MOOC credit transfer system. *The Pie News*. Date View July 17, 2017 <https://thepienews.com/news/he-alliance-to-pilot-mooc-credit-transfer-system/>
- Bjekić D., Obradović S., Vučetić M. and Bojović M. (2014). E-teacher in Inclusive e-education for Students with Specific Learning Disabilities. *Procedia - Social and Behavioral Sciences*, 128, 128–133.
- Boguslavskii M.V. and Neborskii Y.V. (2016). Development of the university education in the context of globalization. *SHS Web of Conferences*, 29. Date View July 17, 2017 [http://www.shsconferences.org/articles/shsconf/abs/2016/07/shsconf\\_eeia2016\\_01011/shsconf\\_eeia2016\\_01011.html](http://www.shsconferences.org/articles/shsconf/abs/2016/07/shsconf_eeia2016_01011/shsconf_eeia2016_01011.html)
- Bono E. (2013). *Six Thinking Hats: An Essential Approach to Business Management*. New York: Back Bay Books, pp. 192.
- Braus J. (1994). *Environmental education in the schools: Creating a program that works!* Michigan, University of Michigan Library, pp. 520.
- Cerr N. (2012). Crisis in Higher Education. *MIT Technology Review*. Date View July 17, 2017 <https://www.technologyreview.com/s/429376/the-crisis-in-higher-education/>
- Crawford A., Saul W. and Mathews S.R. (2005). *Teaching and learning strategies for the thinking classroom*. New York: The International Debate Education Association, pp. 244.
- Kaplan A.M. and Haenlein M. (2016). Higher education and the digital revolution: About MOOCs, SPOCs, social media, and the Cookie Monster. *Business Horizons*, 59(4), 441–450.
- Manca S. and Ranieri M. (2016). Facebook and the others. Potentials and obstacles of Social Media for teaching in higher education. *Computers & Education*, 95, 216–230.
- Pope J. (2014). What are MOOCs good for? *MIT Technology Review*. Date View July 17, 2017 <https://www.technologyreview.com/s/533406/what-are-moocs-good-for/>
- Roberts J.B., Crittenden L.A. and Crittenden J.C. (2011). Students with disabilities and online learning: A cross-institutional study of perceived satisfaction with accessibility compliance and services. *The Internet and Higher Education*, 14(4), 242–250.
- Sanchez C. (2013). *The use of technological resources for education: a new professional competency for teachers*. Date View July 17, 2017 <https://blogs.intel.com/blog/the-use-of-technological-resources-for-education-a-new-professional-competency-for-teachers/>
- Sukhai M.A. and Mohler C.E. (2016). *Creating a Culture of Accessibility in the Sciences*. Toronto, Academic Press, pp. 348.
- Xu D. and Jaggars Sh.S. (2011). Online and Hybrid Course Enrollment and Performance in Washington State Community and Technical Colleges. *CCRC Working paper*, 31, 37

- 
1. Institute for Strategy of Education Development of the Russian Academy of Education, 105062, Russia, Moscow, Makarenko St., 5/16; E-mail: [hist2001@mail.ru](mailto:hist2001@mail.ru)
  2. Udmurt State University, 426068, Russia, Izhevsk, Universitetskaya str., 1; E-mail: [nta64@yandex.ru](mailto:nta64@yandex.ru)
  3. Udmurt State University, 426068, Russia, Izhevsk, Universitetskaya str., 1; E-mail: [neborskiy@list.ru](mailto:neborskiy@list.ru)
- 

Revista ESPACIOS. ISSN 0798 1015  
Vol. 38 (Nº 56) Year 2017

[Índice]

[In case you find any errors on this site, please send e-mail to [webmaster](mailto:webmaster)]