

EEIA-2018
**2018 International Conference "Education Environment for
the Information Age"**

**VECTOR OF EDUCATIONAL DEVELOPMENT IN THE
TWENTY-FIRST CENTURY**

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Abstract

Based on the results of native and foreign scientific studies, the author extracts problems of the twenty-first century, which has entered the rights, and predicts the educational development vector during this historical period. The article highlights skills, which will be acquired by everyone who lives in the third millennium. Some substantial and technological aspects of education are revealed at the new stage of its development.

In particular, according to the author, the main form of school education in the future will be currently introduced subject-oriented instruction with three aspects which distinguish it from traditional one: 1) it is built on a voluntary basis; 2) the key-note of subject oriented instruction is the idea of choice; 3) the core objective of subject-oriented instruction is to prepare students for independent problem-solving in personal, educational and then, professional self-determination.

The author proves that increasingly accelerating process of knowledge humanization based on oriental philosophy: «do not convey knowledge until you make it your» will be the main change in educational content. Knowledge is absorbed and lives long when a person is «grown» in it.

Health saving educational technologies that concentrate a potential to teach all children and to do it well, without causing harm to their health, will play a key part in educational process.

Finally, the translation of education into a continuous process of self-education will be further developed and, along with it, heutagogy, the newly-emerging science, will have a theoretical and methodological justification.

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Keywords: Knowledge humanization, health-saving educational technologies, heutagogy.



1. Introduction

It is quite common to state that the past helps with better understanding of the present processes. However, there is another opinion. Particularly, Alvin Toffler, a famous American futurist, expressed and made an attempt to justify his view. He noted that “a coherent image of the future can also shower us with valuable insights into today”. Toffler links this opinion, among others, with the rapid changes taking place in the world (Toffler, 2002).

Meanwhile, it is not enough to understand the problems holding by the future, it is necessary to provide for its construction. We cannot design and much less build a new reality without education, the cornerstone of any society. All forecasts and hopes for stable development of society and person in the twenty-first century refer to education precisely (Burovsky, 2014; Gutareva, 2015; Inglehart & Welzel, 2010; Katashova, 2015; Mukhin, 2013; Williams, 2010).

2. Problem Statement

Now the understanding increasingly comes that we should be afraid not so much of nuclear and ecological disaster or resource depletion, but unprecedented pace of changes in various spheres of human life. We should be ready for these changes. It is necessary to understand trends. We need researches, wide in scope and deep in content. In order to adjust to the current cycle our contemporaries «will need to transform their attitude to the future» (Toffler, 2002), to understand that education can and should be a mitigating factor, a kind of buffer for a person's adaptation to the third millennium life.

3. Research Questions

Politicians and scientists of many countries agree that the modern world is special. This is evidenced by the fact that the world processes development pace in the 20th and early 21st centuries is not comparable with any other historical period. During the past fifty years, for example, the world has consumed as much energy as for the preceding fifty thousand years. We started to conquer space with supersonic speed. A man goes to outer space, increasingly gets to microcosm. He created yet unknown TV and radio communications, and following the historic scientific breakthrough of Ian Wilmut (Great Britain) he is actively progressing in solving the human cloning problem. There is remarkable success in creation of artificial intelligence and human body organs, etc (Ayhan & Ozturk, 2014).

The research questions aim for identification of problems related with the rapid changes that the 21st century bears in itself, for definition of pathway of all educational levels activity for creating of sense of the future in citizens, especially in children and youth; for shifting the whole educational policy direction to the future.

4. Purpose of the Study

To show the educational development vector in the 21st century. Among the research sources there are:

- Propositions and conclusions of International Conference «Bridges to the future» (New York, 1995) and the UNESCO World Conference on Education for Sustainable Development (Japan, Nagoya, 2014);

- Materials of the project «Strategy of education for sustainable development in Europe, Central Asia and Northern America states" (2004);

- Theoretical and methodological references of consortia, developing the lists of competencies of the 21st century: Assessment and training of skills in the 21st century (ATS21C); International Society for Technology in Education, Learning partnership in the 21st century (P21);

- Concepts of the works of famous scientists: F.D.Demidov, I.M.Ilyinsky, N.N.Marfenin, G.A.Klyucharyov, A.D.Ursul, T.Wagner, Gerbert Gerdzhoy, J.Miller, Ch.Snow, A. Toffler, etc..

5. Research Methods

Content analysis, extrapolation, modelling, systematizing and generalization methods, assessment of the trends in retrospective and prospective plans.

6. Findings

There are some introductory remarks.

Despite the globalization of world processes, in the past half-century the number of states has increased by one third from 139 to 204, also due to the dissolution of such states as the USSR, Yugoslavia, Czechoslovakia, and others.

• Though the average human life expectancy for the period has increased by almost 11 years, the population growth on the planet is slowing down. The fact of population growth slowdown is primarily due to a sharp drop in the birth rate (per 1000 people): from 32.1 in the 60s of the last century to 19.8 in the second decade of the 21-st century (Ayhan & Ozturk, 2014; Cornish, 2004; Williams, 2010).

Specialists of the Institute for the Future (IFF, USA) and a number of other scientific and educational structures call different factors, which will influence the world changes in the future. The most significant ones among them are the following:

- Global development of information and communication technologies;
- The calculable world;
- Population issues: increase in life expectancy, decline in birth rates, same sex marriages, etc.;
- Human cloning;
- Climate change and its impact on the environment;
- Lack of natural and other resources: water, food, etc.;
- Artificial human intelligence and organs, etc (Ayhan & Ezgi, 2014; Cornish, 2004; Williams, 2010).

Describing various experiments George Miller, a famous American psychologist, proves that a person behavior changes, and sometimes can be just damaged due to information overload (Miller,1967). At the same time, changes in all spheres of society activities accelerate inexorably, without complete understanding of all consequences of excessive information, including for human mental health.

Mankind longs for conquering other planets. A key challenge in achieving this dream is «soft landing». Huge resources are channelled and the best minds of many countries work to implement it. In this regard, a rightful question arises, if the modern society is able to provide the soft landing for humans living in the new century house, which is far from being habitable?

Unfortunately, people, in particular, rising generation, have only fragmentary understanding about tomorrow and thus, about life in the third millennium. Curriculums of schools, colleges and universities provide practically nothing for implementation of the imagined future. Nevertheless, young people will have to live in this future.

We can safely predict that tomorrow there will be a demand for specialists who can quickly navigate the rapidly changing reality, and who have «the future in their bones» (Snow, 1959), according to apt word of Charles Percy Snow, an English writer and scientist.

Education should be intended to ensure that its graduates could optimally determine:

- Professions in high demand in 30-50 and more years. Here we also have to take into account rapid digital economy development.

- How relations among people will be built. The world is getting more open. To communicate only in a native language will clearly not be enough. At the same time, the scope and level of language the study of foreign languages need fundamental changes. Especially it concerns the languages of the Asian continent: Vietnamese, Chinese, Hindi, Japanese, etc.;

- If family will survive and in what form.

- What the spiritual, moral and ethical foundations of the future society will be.

- And final, and perhaps most important question: what will a man of new millennium be?

Knowledge of the above will help to identify and develop a technology of mastery of appropriate skills, which enable citizens to cope with the problems the accelerating world bears in itself.

Here we have to admit that today education is hardly ready for it. First, it is not ready because we are grounded on the available theoretical and methodological basis, while it is necessary to build it taking into account sharp changes in conditions and time.

A new era, that is being talked so much, is not approaching. We already live in it. A person is responsible for correct vector of the new era development. It is the context in which we should perceive the process of understanding of the 21st century education.

Today they speak about modernization at all levels and concerning practically all spheres of management. We would not evaluate its impact as a whole. However, as for the results of modernization in science and education, they do not satisfy either those who conduct it or those to whom it is aimed. The reason is simple: parameters for results evaluation are wrong. They are based on economic expediency, and sometimes on slavish copying of foreign models, which is egregious error. They calculate immediate effect, but the result in education and science is always deferred.

At the turn of two centuries – the 19th and the 20th - Dmitri Mendeleev voiced an important methodology: “The world renewal starts at school”. Which means that society renewal is possible only through school renewal! (Mendeleev, 2009).

This position of our great compatriot was developed by equally famous, but Frenchman Henry Barbusse: “School is a place where the thought of younger generation is being formed... It is necessary to hold it tightly in your hands, if you do not want to let go of the future”. (Selected thoughts and aphorisms of great figures and thinkers of all times and peoples of the world, 2014).

At the same time, speaking about present-day domestic school, we should note that the vector of its development is rather abrupt. In practice the real attention to school and education is often replaced by loud

statements, excessive pathetic, confusion and contradictory nature of goals and tasks put forward. School becomes more and more commercial. This exacerbates social stratification and makes the whole areas of its activities accessible only to the rich. The cases of unjustified copying of western educational models in theory and practice are not uncommon.

Meanwhile, domestic education needs not just to be modernized, but also to become different in order to meet the requirements of the 21st century which has entered its rights.

The Soviet school prepared the younger generations for life. In other words, in the first two years and more children learnt, and then they applied their knowledge throughout their lives. Now the situation is changing. The era of lifelong learning has practically come. In this regard, we cannot but agree with the opinion that knowledge is increasingly becoming a “short-lived commodity”.

The world has entered the era of rapid changes. In this regard, it is not difficult to imagine that life in the twenty-first century will require the new skills and abilities. There are at least three groups of skills that will help humans to adapt to a new reality: skills to learn; to communicate; to choose.

Rapid obsolescence of knowledge, on the one hand, and increase of human life expectancy, on the other hand, lead to the fact that knowledge learnt does not always remain relevant until old age. According to famous American psychologist Herbert Gerjuoy, “The new education must teach the individual how to classify and reclassify information, ... how to teach himself” (Toffler, 2002).

In industrial age, there were the following key competencies, which let to declare that a student had acquired the ability to learn:

- ability to read expressively and consciously;
- ability to write quickly and correctly enough;
- ability to think: to collate, to compare, to contrast, to find obscurities, ability to wonder;
- ability to observe the outside world, etc.

At the turn of the millennium, the emphasis is shifting more and more towards developing the skills of critical thinking, creative ingenuity, ability to find non-standard solutions of tasks and issues. In other words, in the twenty-first century new skills and abilities will be required. Moreover, according to Professor Patrick Griffin from the Melbourne Graduate School of Education, Executive Director of the Assessment and Teaching of 21st Century Skills Project, the very concept of profession will disappear in the future. Not the standard set of skills will be defining for certain profession, but ability of a person to reassemble the skills for certain task (Griffin, 2016).

After analysing of many proposals on that subject (Harvard University, New York University, Princeton University, University named George Witt, Stanford University, Portland University, New York University, etc.), an approximate range of abilities to learn in this century looms:

- ability to work in media space;
- quickly distinguish and assimilate important data from a wealth of information;
- meaningfully transform information in new forms and find new vectors of application;
- to see the connections among subjects, ideas and cultures;
- to think laterally and deeply;
- to differentiate modes of thought (historical approach, scientific approach, aesthetic approach, etc.);

- ability to assess the accuracy of information and to work with media;
- to maintain the desire and act in vector of continuous self- improvement;
- to learn throughout their lives, etc etc (Griffin, 2016; Ilyinsky, 2016; Live and learn: What UNESCO says concerning education in the 21 century, 2016; Voogt & Pareja 2010).

At the same time, as before subject teachers meet a fifth grader in school, as well as a senior student. There is no teacher who will help to grapple with questions of critical thinking, reveal secrets of work with information and prompt how to select the current information from huge data amount, who will advise how to get into multimedia space and to comprehend the secrets of cross-cultural communication, etc.

- Nowadays algorithm directed at productive relationship building includes, at least, mutual interest, understanding, respect, support. Only then, we say, there are prerequisites for trust and cooperation. At the same time, the pace of life is growing. In turn, it complicates establishment of mutually acceptable relations - both interpersonal and in group and society. Nowadays everything around us does not pass smoothly, but just flashes. We do not have time to peer, to admire, to assess. This has an impact on stability of relationship; we have no enough time for «appearance of trust». One of the key issues, posed by the future, is the question of relations creation in new reality. Medium-term and short-term relationships replace long-term ones. If earlier the permanency of the chosen place of study and work prevailed, already today, under the pressure of changing conjuncture many of us are increasingly forced to change the direction of our professional preferences, and, at the same time, a place of work.

Virtual communication captures us more and more. Internet rapidly fills our space. And yet Internet and other virtual means of communication are just tools, as a telephone receiver, pen, pencil ... Even the most sophisticated network is not a substitute for live communication. Experience convinces us that a person feels in fact lonely, having extensive virtual contacts. And how can we disagree with the opinion that “virtual communication is nothing but a form of loneliness with illusion of presence”.

However, today the growing diversity of relationships is becoming the norm rather than the exception. We rightfully believe that this will be the growing trend. In turn, this raises the issue of formation of different adaptation and communicative level. We cannot solve this problem without education, school, diligent work of scientists in different areas of knowledge.

It seems that the following abilities to communicate will remain relevant:

- ability to understand and to accept human nature and to act in accordance with it;
- ability to establish and to maintain links and relations with people;
- ability to work as part of the team, etc.

However, other skills typical for the twenty-first century will also be in demand:

- ability to communicate in virtual space;
- ability to establish links under increased and deepening use of information technologies, including digital ones.

It is common knowledge that everything in modern world is connected and influences one another as never before. In this regard, we should approach to solution of any problem in an integrated manner, researching it with many different ways and trying various theories. In other words, to solve communication problems, citizens will need to be armed with the skills that allow at the same time to show necessary flexibility, high knowledge and effective work in team (Ilyinsky, 2016; Voogt & Pareja, 2010).

- It is hard to argue with a statement that properly developed relations are the source of success in all areas of life. However not everyone realizes that relations are closely connected with qualities of a person, with ability to choose, that they grow from his internal value system. In other words, Inner Self of a person for 90% depends not on himself, but on quality of his relationship, on what kind of energy he comes into contact with.

In order to determine the top-10 values of a person of the twenty-first century three groups of ten life values were analyzed: USA, (identified by American psychologist Michael Michalko); Japan (based on the study of Professor Takeshi Sato of Hitotsubashi University), Russia (the data of WCIOM (Russian Public Opinion Research Center). Peace and Security, Freedom, Love and Health were among ten values in all three countries. As for other six values, they are individual in every mentioned country (Burovsky, 2014; Cornish, 2010; Gutareva, 2015; Nikitina, 2017; Williams, 2010).

Analysis of identified values, as well as numerous studies which addressed the issue of values, allowed determining the top-10 of values of the twenty-first century.

The absolute value - Life - is rightly ranked first.

The next values are:

Health as absolute and permanent value, as the fundamental element of every human life.

Love as element of relationships. Family relationships are included;

Cross-cultural communication as connection and communication among different cultures;

Time as an invaluable resource that cannot be bought, changed, sold;

Freedom as the purpose of development;

Peace and Security are values ensuring the peaceful coexistence and sustainable development of each person, society, civilization;

Knowledge as basis for life and development of person and society;

Media literacy is a set of skills and abilities. Without their developing, it is difficult to imagine human lifelihoods in the third millennium in total and in the twenty-first century in particular;

Creativity as a means of human self-realization (Burovsky, 2014; Cornish, 2004; Katashova, 2015; Wagner, 2014; Williams, 2010).

The twenty-first century with its clear unpredictability poses a challenge to education and school, the challenge of such a coordinate system creation, which would support survival and further development. We can say more. The world changes so quickly that, according to futurists, in the next two or three decades education will have to make the same way which it overcome in two or three centuries in earlier times.

In comparison with it, voices are being raised about including in curriculum only the things, which meet the challenges of the future. A wide range of different short-term courses (each of them is for 12 hours and more) is proposed to practice in addition to standard curricula, etc. Having outlined the range of the most common problems that modern society is already facing, let us look at some substantive and technological aspects of the 21st century education. According to many scientists and practitioners, a subject-oriented instruction is likely to become the most acceptable educational form in the future. It is the subject-oriented instruction that increases opportunities for socialization of schoolchildren, provides continuity between general and professional education, creates conditions for implementation of life plans and professional career of students.

The introduction of subject-oriented instruction is truly a strategic direction for development of education, because it affects its basics: goals, objectives, principles, conditions of organization, content, forms of implementation and technological provision.

V.A. Sukhomlinsky was one of the first to talk about humanization of knowledge. “To humanize” means to consider knowledge and its objects from the point of view of their significance and usefulness for people.

“First of all, humanization means empathy”, in which “the objectified product of another person's creativity is being filled with feeling”, in our case, with the teacher feeling. Thus, knowledge comes alive. Teacher is heavily responsible to make another person's discoveries “alive and integral part of forming person” (Dronova, 2007).

Life activity of literally all school components directly depends on academic achievements. They will be provided if a student does not feel uncomfortable in learning, is proud of the fact that his knowledge expands and deepens every day, and his physical, mental and emotional health is not harmed.

Realizing the importance of health in the life of everyone, the best educational institutions, innovative teachers started to look for more effective technologies, which would exclude any overload in educational process and allowed everybody to learn, and moreover, to learn well.

Thus, the development and implementation of health-saving educational technologies into school practice was initiated. In other words, it is important not only to develop a theme, but also to use such a technological arsenal that would allow students to absorb particular knowledge and yet not to feel discomfort negatively affecting the children health.

It seems to us that effective solution for building the school of future is connected with translation of educational process into a process of continuous self-learning of students.

There is a popular belief that someone is teaching/educating us: “Teacher is teaching/educating”, “School is teaching/educating”. In general, we tend to associate any achievements with the fact that someone teaches or educates us. Generally speaking, a person learns (or does not learn) himself. The task of teacher is to reveal the basics of this or that knowledge, using the most productive techniques and technologies, effective tools and methods, and student learns independently, because nobody will do it for him.

This allows us to note that nothing can be given to a child without his will, desire and constantly developing self-active fundamentals. We cannot teach a child, it is only in his power, as well as he cannot be educated without his own desire to become a different one and his personal active participation in the very process of transformation.

In this regard we believe, that the transfer of education into the process of continuous self-education will be increasingly accelerated, and heutagogy will be further developed (Graumann, 2013; Live and learn: What UNESCO says concerning education in the 21 century, 2016).

- In the conditions of a globalizing and rapidly changing world a humanologist teacher will be in demand at school, not only with good pedagogical training but also with a fundamental education and a strong spiritual and moral core.

We believe that the central issues in the professional training of teachers will be three fundamental principles in their harmonious unity - intellectual, emotional and aesthetic, spiritual and moral - defining

their professional, social and ethical and culturally oriented aspirations. If teacher changes, so, school, students, parents and all the system of education will change (Dzhurinskiy, 2014; Lengel, 2012; Graumann, 2013; Ilyinsky, 2016; Miller, 1967; School education in Russia and Belorussia in the 21 century, 2017).

7. Conclusion

It will be very problematic to solve the problems of the twenty-first century without education. It is education, which can and should help to adapt in a house called to “the third millennium”.

Not only highly educated people will be able to transform the world and preserve civilization, but also and perhaps most importantly, people with a developed sense of responsibility for their own destiny and the destiny of their country, as well as the destiny of our planet. In other words, only a person with responsibility to the Earth can solve the outlined problem (Ilyin & Ursul, 2013). It is impossible to create such a person without education and school as its key element. School is the place where it is possible and necessary to form such qualities among young generations, which allow young people, motivated by responsibility for the planet destiny, to understand the reasons of looming challenges and to provide imperative of human survival in the twenty-first century and stable development of modern civilization.

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