

ICEST 2021**II International Conference on Economic and Social Trends for Sustainability of Modern Society****EDUCATION OF THE FUTURE IN THE CONDITIONS OF VUCA
WORLD**

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(a) National Research Tomsk Polytechnic University, Lenin Avenue, 30, Tomsk, Russia, ibrylina@yandex.ru(b) Perm National Research Polytechnic University, Perm, Russia, nataokonskaya@rambler.ru(c) Perm National Research Polytechnic University, Perm, Russia, mikhail_ermakov@mail.ru(d) National Research Tomsk Polytechnic University, Tomsk, Russia, frostfix1@rambler.ru**Abstract**

The paper studies the changes in education in the conditions of the VUCA world. The comparative analysis of futurological concepts of education by A. Toffler, M. Castells, C. Kerr and modern researchers is carried out. New competences of the graduate of the University of the Future are determined, which the authors characterize as “metaqualification”, “transfessionalism”, “existential” competences, which are in demand in the VUCA world. The main methods are comparative analysis of the concepts of the University of the Future in new socio-cultural conditions and forecasting of a new model of education. The University of the Future is considered as a cluster-network structure, a complex phenomenon formed by the cluster-network interaction of the university, business and state in its unity and integrity engaged in the processes of the generation of new knowledge, new technologies and a graduate of new generation. The University of the Future is focused on a new type of students, characterized by the ability to self-development, self-formation and innovative decision-making throughout life in the conditions of uncertainty, over-choice, over-complexity and fluid reality. It is concluded that the university has a huge adaptive potential. The mechanism of adaptation of the university is interpreted as the choice of the logic of development (evolution of the forms of the university). The result of adaptation is presented in the coexistence of a variety of forms of educational practices and the expansion of the functions of the university. This contributes to the manifestation of its stability in the changing world.

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1. Introduction

The world has changed. The new sociocultural reality is characterized as “liquid modernity” (Bauman, 2009) and “individualized society” (Bauman, 2001), “knowledge society” (Drucker, 1993), “risk society” (Beck & Ritter, 1992; Giddens, 2002), the era of “super-complexity” (Barnett, 2008), which reflects the fluidity, uncertainty, riskiness, insecurity and super-complexity of the modern world. All these properties of the innovative transitional reality in the scientific literature are called “VUCA world”, which means the world in the conditions of “Volatility, Uncertainty, Complexity and Ambiguity”. It is obvious that in the conditions of the new socio-cultural reality, global transformation awaits the formation of the future.

2. Problem Statement

The modern transitional era has raised the question of the adaptation of a person to a new world and since the university is the main mass institution of socialization and adaptation of an individual, its dramatic changes carry a real threat of losing its essence (“idea”) and that special culture of the classical university education, which was formed in it over the course of more than nine centuries of its evolution. Therefore, modern education in general and the university as its advanced outpost today face the challenge of a radical transformation of the socio-cultural environment associated with globalization, innovation, informatization, automation, pragmatization and marketization of public life.

3. Research Questions

The list of research questions includes the following ones:

- What dramatic changes await education in the VUCA world?
- What knowledge and skills will the economy and society need in the 21st century in order to achieve success both individually and collectively?
- How will the educational system change in order to be able to form this knowledge and skills?
- What will the University of the Future be like?
- What competencies will be in demand by a graduate of the University of the Future in the 21st century?
- To what extent are the futurological concepts of education by A. Toffler, M. Castells, C. Kerr and other authors relevant in the new socio-cultural conditions?

4. Purpose of the Study

The purpose of the research is to determine the trends in the formation of the University of the Future and identify new competencies of the graduate in demand in the VUCA world.

5. Research Methods

We should focus on the changes that have occurred with society and people in the 21st century asking the question about the education of the future.

On the one hand, in the 20th century, a number of futurological and predictive theories of society emerged, which reveal the role of education in the culture of the future.

Such authors as Dahrendorf (1958), Galbraith (1967), Brzezinski (1976), Drucker (1993), Toffler (1980), Bauman (2001), Bell (1999), Kerr (1982) and Castells (2004) studied the phenomenon of education within the boundaries of society, called “post-capitalist”, “new industrial”, “technotronic”, “one-dimensional”, “knowledge society”, “super-industrial”, “individualized”, “post-industrial”, “pluralistic industrialism” society, “network society”.

The idea of a university of the future became an integral part of their theories. A comparative analysis of these theories reveals their relevance and invariance in the VUCA world.

On the other hand, according to the predictive method, some researchers write about the death of the university: “Western University is dead” (Barnett, 2008), “The university is in ruins” (Readings, 1996), “The university as an institution is outdated” (Fuller, 2005), while others are actively developing the concept of the university of the future, which in modern philosophical discourse has already received different names: “innovative” (Prokhorov, 2013), “research” (Ignatov, 2011; Supyan, 2009), “entrepreneurial” (Clark, 1983), “commercial” or “corporate”, (Fuller, 2013; Karpov, 2013), “non-classical” (Krasikov, 2008; Petrova, et al., 2015), the University of “World class” (Salmi, 2009), the university of the “third generation” (Wissema, 2009), the university “in market conditions” (Bok, 2004), “postmodern” (Miroshnikova, 2015), “post-nonclassical” (Kasatkin, 2017), “Cognitive University 4.0” (Efimov & Lapteva, 2017).

This is not about the death of university education as an idea, but about its failure as a social institution in its previous classical version, and, at the same time, about its chance for a radical transformation. Such authors as Efimov and Lapteva (2016) offer to consider what is happening with the university not as a “crisis” or “death”, but within the framework of the concept of “transformation”. They write that “Transformation is a crisis and destruction of one sociocultural whole and at the same time it is the birth and deployment of another” (p. 146).

5.1. Futurological project of university education by A. Toffler

Toffler (1980, 1984) formulates the theory of “superindustrial” society, the main engine of which is technical progress. He reflects the main ideas of the concept of the society of the future in the works “Future Shock” (Toffler, 1984) and “The Third Wave” (Toffler, 1980).

According to the futurological project of university education (Toffler, 1980), the theory of superindustrial education corresponds to a «superindustrial» society:

In order to create a superindustrial education, we must develop successful alternative ideas about the future – imagine what types of jobs, professions and inclinations will be needed in the future, in 20 to 50 years, what forms the family will take and what human relationships will prevail; what moral

and ethical issues may arise; what equipment will surround us and with what organizational structures we will have to work. Only through the development of such ideas we can come to the conclusion about the nature of cognitive and emotional skills that people of the future will need in order to survive the accelerating pressure» of time. In his opinion, a new person will need such qualities as: the ability to learn, the ability to communicate, the ability to choose (in conditions of over-choice). Summarizing these skills, we can say that a person of the future will have to «learn to change» (Brylina, 2018, p. 149), “continuously learn, complete, retrain and forget (outdated knowledge)” (Brylina et al., 2020, p. 953).

However, despite the cultural relativism and scientific neutrality of the education of the future, he believes that education will remain faithful to the rhetoric nature of the formation of the character of students, but the function of teachers will not be to impose the framework of past cultural and moral values, but to support students in the formation of his own “life know-how” (“knowledge of life”). He writes about the mechanism of learning: “You need to be able to do both this (learning) and that at the same time, passing one in the conditions and environment that shape the other” (Toffler, 1984, p. 454).

5.2. Futurological concept of education by M. Castells

A theory similar to that of E. Toffler is expressed by M. Castells, calling society “informational”, the key characteristic of which is the network logic of its basic structure. “Information technologies determine the picture of the present and they will even more determine the picture of the future” (Castells, 2004, p. 20). According to M. Castells “The networked society is a product of the information technology paradigm that emerged in the late 20th century and determined the strategy for the development of modern society” (as cited in Ardashkin, 2017, p. 259). It led to the transformation of the nature of communications, which became networked. “The specificity of network communication is manifested in the horizontal nature of communication and in the absence of a hierarchical structure of relations between the participants in communication” (Ardashkin, 2017, p. 261).

M. Castells wrote about the decrease in the role of state in the life of society and the increase in the role of an independent and free person.

He also analyzed the history of the creation of the most innovative factor in the development of a new economy – a cluster model of interaction between universities, business and the state through the example of Silicon Valley, coming to the conclusion about the effectiveness and long-term duration of cluster-network interaction.

According to the futurological education concept of Castells (2004), the information technology paradigm that emerged in the 20th century determined the development strategy of modern society as a network.

The network format of communication changed both the social structure and the lifestyle of a person. Since freedom and constant self-education become key values of a network society, Castells (2004) foresees that “we will need a new pedagogy based on interactivity, personalization and the development of independent learning and thinking abilities. At the same time, it promotes character education, personal protection” (p. 208).

5.3. Pragmatist Concept of University by C. Kerr

The specifics of C. Kerr's approach to education are revealed through his conceptualization of university in the culture of the future, which he calls «pluralistic industrialism» or «individualism with a human face». C. Kerr speaks of such a sociocultural phenomenon as a multi-university. He writes that today a large American university is rather a series of communities and fields of activity, united by a common name, common managerial staff, and related goals. Some people criticize this great transformation, many accept it, very few celebrate so far, but everyone should understand it (as cited in Lavrinenko, 1996, p. 8). He writes about a multi-university as a combination of the incongruous elements, under which society takes on a meritocratic character and the university campus becomes an arena of social conflict (Brylina, 2018, p. 153).

Kerr (1982) writes that: multiversity is an incompatible institution. It is not one but several communities – a student community and a graduate student community; community of humanists, community of social researchers and community of scientists; community of administrators. As an institution, it looks far into the past and far into the future, and often disagrees with the present. It serves society almost slavishly – it also criticizes society, sometimes mercilessly. Internal incompatibility does not at all prevent the multiversity from being compatible with the society around it. On the contrary, constant internal struggle is a guarantee of “stable freedom”, because although the multiversity does not have a common “soul”, it has a single ideal guiding its actions – everything that it does should be aimed at finding the truth. The goals have already been given: preservation of eternal truths, creation of new knowledge and improvement of service where truth and knowledge of a higher order can serve human needs. There are goals: the means must be constantly improved in a competitive dynamic environment. (p. 115)

Thus, the constant struggle for competitive advantages is a guarantee of “stable freedom”, the absence of a common “soul”, but the existence of a single center that guides the actions of the centre of multiversity - all this is realized by the improvement of the system of servicing that serves human needs. Only in this way is it possible to preserve the perfect intellectual basis of the university, built into the context of the struggle for competitive advantages.

In the work “University Tasks” C. Kerr focuses on the elements of multiplicity and diversity. The idea of a multiversity reflects “the amazing variety of forms of activity that is now carried out in large research universities” (Collini, 2012, p. 25), writes S. Collini about the concept of C. Kerr. Kerr saw the potential for social change in the sphere of elite, not mass education. He associated social changes with a segment of elite education as opposed to mass.

6. Findings

The process of education in the 21st century is considered not as an “expense”, as it was in the 20th century, but as the most important investment in one's future. This is also expressed in the work of Krasikov (2008):

Knowledge in the post-industrial society is given the same importance as the «capital funds» in the industrial; training is a tool that enables a person to accumulate a «knowledge fund», just as a business allows accumulating «capital funds». The more people learn, the more «knowledge fund» they acquire. The hidden subtext of learning, therefore, sets a new social structure of society in which the main consumers of knowledge receive special privileges, have high income and access to more efficient means of production. This type of «capitalization of knowledge» determines the logic of the distribution of jobs and income. And if in the previous century entrepreneurs, businessmen and industrial leaders were the dominant figures, today they are mathematicians, economists and creators of new intelligent technologies. Traditional education gives qualifications, new education – meta-qualifications, i.e. the methodological and ideological system of skills as the basis for the assimilation and generation of new knowledge. (pp. 15–16)

If the purpose of a classical university was to prepare a “universal” – a professional who is erudite in different fields of knowledge, then the purpose of the University of the Future will be to train a “transfessional”. Transfession is a type of labor activity carried out on the basis of the synthesis and convergence of professional competencies related to different specialties. The professional characteristic of transfession is transprofessionalism. It is the ability to perform a wide range of specialized activities (Zeer et al., 2019, p. 4767)

6.1. Competencies of the future for a complex society

In the conditions of the VUCA world, a graduate of the University of the Future will differ significantly from a graduate of a “classical university”.

Along with the formation of professional qualities, the most important will be the formation of life or existential competencies. Luksha (2021), in his speech “The Global Future of Education” highlights the following aspects:

- Management of concentration and attention
- Empathy and emotional intelligence
- Collaboration
- Thinking: critical, problem-oriented, systemic, cooperative-creative
- Creative skills
- Work in interdisciplinary environments
- Literacy of the 21st century: understanding global problems, skills in health management, understanding the principles of society, the ability to take care of the environment, financial literacy, etc.
- Skills in ICT and media
- Ability to learn, unlearn and relearn throughout life
- Flexibility and adaptability
- Responsibility at work (including ethics of interaction with other members of society and work ethics of person-centered services) (Luksha, 2021).

We suppose that the researcher rightly believes that the model of modern education opposes these tasks and continues to prepare graduates for the past and not for the future. In this regard, Luksha (2021) expresses confidence that education all over the world awaits a radical restructuring and a formation of a “new university ecosystem”, the emergence of many new actors (stakeholders).

7. Conclusion

The University of the 21st century has already declared itself as the most serious branch of the industry of the 21st century, manifesting the closest interaction with business and state, economy and politics. In our opinion, education of the future stands on the path of close connection (convergence) of university, business and state into a cluster-network structure – a complex formation, which will include many aggregates-communities, in its unity and integrity engaged in the processes of the generation of new knowledge, creation of new technologies and formation of a new generation of humanity.

Thus, we can conclude that University

1. Will remain stable in conditions of variability in the context of:
 - Knowledge
 - Society
 - Human.
2. Will show variability through the emergence of new variable forms of educational practices, among which each student will receive great opportunities to choose those forms that, are necessary for him.

The process of education will become more individualized and the university will show its adaptive potential in the expansion of its functions, remaining a large-scale center of culture and education in society in the VUCA world.

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