



FUTURITY
Education

DOI: <https://doi.org/10.57125/FED/2022.10.11.19>

How to cite: Devadze, A., Gechbaia, B., & Gvarishvili, N. (2022). Education of the future: an analysis of definitions (literary review). *Futurity Education*, 2(1). 4-13. <https://doi.org/10.57125/FED/2022.10.11.19>

Education of the Future: An analysis of Definitions (Literary Review)

Anzor Devadze*

PhD in Economics, Professor Head of Tourism Department, Batumi Shota Rustaveli State University, ORCID: 0000-0001-6344-7385

Badri Gechbaia

Doctor of Economics, Associate Professor, Head of Department of Business Administration, Management and Marketing, Batumi Shota Rustaveli State University, ORCID: 0000-0003-2815-2228

Nani Gvarishvili

PhD in Biology, Associated Professor Head of the Master's Educational Program in Ecology Batumi Shota Rustaveli State University, ORCID: 0000-0002-7864-6181

***Correspondence email:** devadzeanzor@mail.ru.

Received: January 9, 2022 | **Accepted:** February 28, 2022 | **Published:** March 25, 2022.

Abstract: The education of the future requires new approaches to the implementation of the target principles of this sphere of social activity. The reason for the transformation of educational principles and ideas is a cardinal change in the format of educational space associated with the active introduction of globalization factors and elements of information and digital technologies. The purpose

of scientific exploration is to systematize the definitions of future education in the context of the content and format of educational activity. The objectives of the article are to identify the main priorities for the development of education in the short and long term. Methodology, which is able to ensure the implementation of goals and objectives of scientific research, is based on general scientific (analysis, forecasting, systematization), philosophical-scientific (synergetic), and prospective scientific and pedagogical (developmental pedagogy, digital pedagogy, pedagogical modeling) elements. A promising direction of research is structuring the definitions of future education in accordance with the actualization of certain clusters of the educational activity (socialization, digitalization, humanization). So, 4 clusters of definitions of future education perspectives are proposed: existential educational dimension, long-term educational strategies, short-term educational planning, futuristic projects in the educational space. The fundamental principle of planning of prospective models of education development will be the concept of education quality, which will include aspects of the purpose of education as a socio-cultural phenomenon and elements of the format of educational space.

Keywords: education, prospects for education, educational innovation, the transformation of education, education of the future.

Introduction

For a long time, the goals of education have declared the preparation of a successful professional. However, the turbulence of today's world recognizes uncertainty and instability (Cook, 2019). There is a devaluation of basic target educational definitions. The education of the future under such realities cannot have clear definitions at all.

When we discuss models of future education, we note that students must be prepared for potential future changes in the content and format of education. One of the parameters of student activism and self-actualization in the educational system is overcoming uncertainty in the temporal dimension: past, present, and future (Howells, 2018). Education has long been a hotbed of conservatism and permanence of development. However, the dynamism of modern civilizational progress requires innovative approaches in the planning of educational strategies. This format assumes the specified uncertainty and requires adaptation of the educational system to potential changes in the future.

Research Problem

The planning of new educational models and ongoing transformations in education is a familiar phenomenon in the centuries-long history of the development of this sphere of social activity. However, today requires promptness in forecasting and updating educational strategies. Lightning changes in the socio-cultural space do not allow a balanced and systematic work on educational transformation. Continuity in education is replaced by dynamism, determining new conceptual principles and ideas in the education of the future.

Research Focus

One approach that can solve the problem of dynamism in preparing the educational system for the permanent changes associated with innovation is transformational education focused on a sustainable future (Marouli, 2021). Education of sustainable development requires taking into account not only

educational realities but also socio-economic and cultural life. The development of education under such conditions must correlate with all spheres of social activity, which does not exclude drastic dramatic changes in any of them. Thus, a system of balances is formed, which prevents catastrophic consequences of periodically arising crisis phenomena.

The defining element of the education of the future will be the ability to withstand crisis phenomena (Burgos et al., 2021). Right now, education is struggling to overcome the socio-cultural challenges of a pandemic, a full-scale war in the center of Europe, etc. The peculiarity of combating the crisis is the use of innovative educational formats (distance learning, digital educational bases, the use of artificial intelligence), which are mainly associated with the future. Consequently, society is forming beliefs that the future is a time when crises in education will be solved by the latest technologies and techniques.

Research Aim and Research Questions

The scientific exploration aims to structure definitions of the education of the future in the context of potential transformations of the content and existential dimensions of education and the format of the educational environment. The objectives of the article are to plan educational strategies. Which ones are oriented towards innovativeness and dynamism.

Research Methodology

General Background

The scientific exploration used general scientific methods, focused on the study of prospective directions of development of the educational sector. Analysis, forecasting, modeling, systematization are the main methodological components, which allow planning the priorities of education development. Philosophical-scientific synergetic methodological paradigm provides the use of self- organization and interdisciplinarity principles in education.

Sample / Participants / Group

Important for the study of the methodological settings of future education is the use of innovative pedagogical developments, in particular: developmental pedagogy (Nind & Lewthwaite, 2018); the methodological foundations of digital pedagogy (Anderson, 2020); modeling as a means to bridge the gap between theory and practice in education (Nordkvelle et al., 2019).

Data Analysis

Big data is a vivid expression of the new methodological provision of the educational space (Baig et al., 2020). The modern educational system operates with large amounts of information, methods, or research. Consequently, the need for tools capable of processing and managing these information niches is actualized. "The convenience and embeddedness of data collection in educational technology, combined with computational techniques, have made big data analysis a reality" (Luan et al., 2020).

Research Results

Trying to structure the definition of the education of the future, we state that this sphere of social activity under any paradigm retains activity and uniqueness. The reason for this is the deep integration of education into all spheres of society.

“The notion of neutral, objective education is an oxymoron. Education and pedagogy do not exist outside of ideology, values, and politics. When it comes to education, ethics requires an openness to the other, a willingness to participate in the “politics of possibility” through constant critical engagement with texts, images, events, and other registers of meaning as they become pedagogical practices both inside and outside the classroom. Education is never innocent: it is always involved in relations of power and specific visions of the present and future” (Giroux, 2020).

The conventional educational process implies constancy and traditionality in the development of the educational industry. When we talk about derivatives of this educational definition, we differentiate normal educational process; new normal educational process; subsequent normal educational process (Bozkurt & Sharma, 2020).

The dynamism of the modern world implies the development of education. The task of the scientific and pedagogical community is to develop universal mechanisms to interpret the new changes in education. At the same time, it is important to realize the differentiation of new and subsequent phenomena and processes in education, as the first become potential, and the second - formed in the educational system.

It is proposed to distinguish several main clusters of educational development, which will be the determining factors when planning transformations in education (see Table 1).

Table 1

Clusters of Educational Transformation

globalizing	the impact of integration processes on the
information and communication	significant increase and improvement of the
technological-digital	change in the formats of the educational process
practical-household	quality of educational training
humanitarian	preservation of the role of humanistically education and upbringing

Source: authors' own development.

The information and digital segment in education acquires such influence that it requires a certain systematization of its components. The principle of the information system of education is proposed, which will cover all aspects related to the elements of digitalization (Topi, 2019). Today, digitalization and technologization are the means used in education, science, and culture. This positioning creates a demand for professionals to fuel these trends in public life (Ehlers & Kellermann, 2019). Over time, however, scenarios are possible where education begins to serve the technological- digital space. This goal-oriented reorientation of education is shaping a range of newer interpretations of the concept of education of the “future”.

One of the varieties that will be in demand in future educational trends is entrepreneurial education (Igwe et al., 2021). We are currently witnessing the powerful influence of economic expediency in all manifestations of social activity. Increasingly there is a question of reorienting the format: education for education into a model: education for the economy. Such attitudes determine the future directions of education, its educational and methodological support, organizational model.

The education of the future is designed to solve the problems arising in the entrepreneurial, technological, and engineering clusters (STEE). The interaction between the research and entrepreneurial segments of education should be strengthened (Fayolle et al., 2021). The actualization of synergetic attitudes will contribute to the efficiency of learning and allow the alignment of the positions of education, science, technology, and culture. Especially since the science and education field has a powerful mechanism for implementing such processes, namely the principles of transdisciplinarity (Tejedor et al., 2018). Prospective models of education redefine “the focus of science/STEM education in light of growing societal challenges by introducing a transcontextualization component to science education to move beyond the classroom and seek to impact society” (Holbrook et al., 2022).

The education of the future already has many developmental perspectives and innovative models that form fundamental educational clusters. Whether they can be realized in the future depends on the tools involved for their implementation. One of the key principles that can become a logistical segment, which will bring all the tools to a single denominator - mobility. Internal or international mobility (internationalization of education) is an obvious component of the education of the future because there is already a potential for innovation (Rumbley, 2020).

Internationalization, and with-it globalization, determine the content and form of the educational sphere (de Wit & Altbach, 2021). When we consider the process of educational reform, we must state the dependence of science on global processes on the planet. Current trends indicate that this dependence increases literally every year.

An important point for the future development of education is the formation of proper conditions for maintaining effective communication between the stakeholders of the educational process. In the tumultuous information and communication world (which will undoubtedly gain even more scale and intensity), mechanisms for streamlining are needed. Two guidelines are suggested: the development of tools that will respond to contexts in a timely and comprehensive manner; the implementation of a unified educational language that all educators will understand (Richmond et al., 2019).

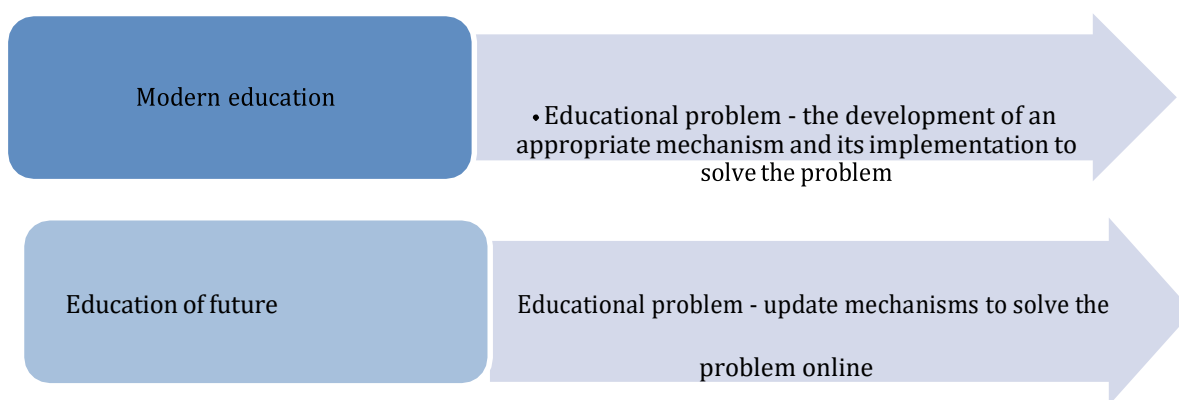
The future of education is inextricably linked to the 4th Industrial Revolution, which is taking place in a sociocultural dimension. IR 4.0 affects all components of the educational process: control of learning

components, the realization of educational potential, organizational and teaching activities, and socialization of education (Elayyan, 2021). Since IR 4.0 is becoming more and more established in the worldview paradigm every year, it can be predicted that in the future these trends will determine the content and form of education. The main attitude inherent in the educational system in the Fourth Industrial Revolution will be a synergetic model of development, according to which the physical, biological and digital will be erased (Butler-Adam, 2018).

The education of the future must be associated with dynamism. A world oriented toward development and advancement sets the stage for all spheres of social activity to be guided by dynamism. In education, dynamism manifests the continuity and flexibility of learning (Orakcı, 2020). The peculiarity of educational development will be the reorientation of methodological approaches in solving problem and crisis phenomena (see Fig. 1).

Figure 1

Algorithms of Response to the Crisis in Education



Source: authors' own development.

Discussion

Today's education is actively introducing flexible competencies in order to prepare the individual for potential changes (often unpredictable) in the future. However, there is an opinion among the scientific and pedagogical community that an individual should not take a passive position. The idea of a sustainable future is promoted, characterized by the ability of individuals and society to construct this future through their effectiveness and activity. Education is supposed to provide people with the necessary knowledge, skills, and abilities to construct this future. This is how education becomes subjectivized. In this dimension, education is a fertile ground for the development of experimental and critical thinking (Holfelder, 2019).

The education of the future cannot ignore the educational cluster. The moral and psychological aspect will always be relevant in the educational environment, regardless of the trends of civilizational development. The leitmotif of the new educational paradigm is the continuity of learning focused on empathy (Laszlo, 2019).

A feature of the future positioning of the subjective factor in education should be the alignment of individual and collective segments of learning. In order to maintain the social relevance of the educational space, the problem of civic engagement must be preserved in the educational models of the future (Kavadias et al., 2020). A key organizational challenge for the educational space of the future is to preserve the constants of openness and accessibility in education (Teixeira et al., 2019).

One possible scenario for future education is the futuristic path. One segment that can realize this perspective is artificial intelligence. Numerous studies conducted on the use of artificial intelligence in the educational field have demonstrated that, to date, the gap between technological innovation and its perception among the educational community has not reached a critical level (Zhang & Aslan, 2021). However, the rapid development of scientific and technological progress may change the situation. Then a futuristic scenario of educational development will be actualized when artificial intelligence or another segment will dictate the conditions of educational development rather than being an auxiliary element in the educational system. Of course, such formats pose rather serious threats to the human dimension, since the subject of the educational process loses its dominant status, and education becomes a hostage of innovative futuristic elements.

One of the contradictions that will shape the scientific and pedagogical discourse of education of the future will be the dichotomy: digitalization vs intellectuality (Murphy & Costa, 2019). Education today is being reoriented toward digital resources. The information and communication transformation constructs a qualitatively new educational paradigm in which there is less and less room for the intellectual dimension. Of course, digitalization significantly improves quantitative indicators in education, but the high level of quality of education, which is based solely on digital resources, has not yet been proven. When the education format of the future will be able to realize all the quantitative indicators of digitalization of education into qualitative ones, it will be possible to talk about a revolution in the educational sphere. Now digitalization is only a prospective way of education development.

The present, permeated by innovative trends, still leaves the traditional educational model as the dominant format. Intelligence is positioned as the dominant component of education. The quality of education is still defined by fundamental and flexible skills, creative and critical thinking, synergetic and interdisciplinary methodology (Jeder, 2020). Problems of quality of education are thoroughly investigated in the modern scientific and pedagogical discourse (Prakash, 2018) and quite a lot of promising developments focused on the implementation in the education of the future.

A separate cluster of educational definitions related to the future determines the moderation of development in the turbulent realities of scientific and technological progress. The peculiarities of future projects are expressed in regular updates of work curricula and programs determining the content and form of educational and qualification levels (Ramírez-Montoya et al., 2021).

In this context, one of the possible scenarios for the education of the future is the sustainable evolutionary development of the current educational paradigm in both short- and long-term dimensions. This format has been agreed upon as a priority at the UN level, at least until 2030 (Burbules et al., 2020). Key trends in education respond to today's demands, but they do not threaten the traditional educational paradigm. Consequently, the education of the future can likely remain as it is today, using sociocultural innovation as an auxiliary or alternative format.

Conclusions

The analysis of definitions of the education of the future demonstrates the domination of pragmatic principles of the prospects of this sphere of social activity. Education, being inherently conservative-oriented, cannot, following the example of science, allow for cardinal transformations. Evolutionary development even in the face of rapid changes in the socio-cultural environment is a distinctive feature of educational development. The key principle of scientific and pedagogical discourse, which allows responding to external changes and planning educational strategies for the future, is dynamism.

We propose a classification of future education models based on the potential implementation of planning educational transformations: existential dimensions of future education (a general understanding of the role of education and its positioning in the system of civilizational development); long-term educational strategies (the need to change the format of the educational environment in accordance with the realities of socio-cultural development); short-term educational programs (planning the organization and content of educational).

References

- Anderson, V. (2020). A digital pedagogy pivot: Re-thinking higher education practice from an HRD perspective. *Human Resource Development International*, 23(4), 452–467. <https://doi.org/10.1080/13678868.2020.1778999>
- Baig, M. I., Shuib, L., & Yadegaridehkordi, E. (2020). Big data in education: A state of the art, limitations, and future research directions. *International Journal of Educational Technology in Higher Education*, 17(1). <https://doi.org/10.1186/s41239-020-00223-0>
- Bozkurt, A., & Sharma, R. C. (2020). Education in normal, new normal, and next normal: Observations from the past, insights from the present, and projections for the future. *Asian Journal of Distance Education*, 15(2). <https://doi.org/10.5281/ZENODO.4362664>
- Burbules, N. C., Fan, G., & Repp, P. (2020). Five trends of education and technology in a sustainable future. *Geography and Sustainability*, 1(2), 93–97. <https://doi.org/10.1016/j.geosus.2020.05.001>
- Burgos, D., Tlili, A., & Tabacco, A. (2021). Education in a crisis context: Summary, insights and future. In D. Burgos, A. Tlili, & A. Tabacco (Eds.), *Radical solutions for education in a crisis context. Lecture notes in educational technology*. Springer. https://doi.org/10.1007/978-981-15-7869-4_23
- Butler-Adam, J. (2018). The Fourth Industrial Revolution and education. *South African Journal of Science*, 114(5/6). <https://doi.org/10.17159/sajs.2018/a0271>
- Cook, J. W. (Ed.). (2019). *Sustainability, human well-being, and the future of education*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-78580-6>
- de Wit, H., & Altbach, P. G. (2021). Internationalization in higher education: Global trends and recommendations for its future. *Policy Reviews in Higher Education*, 5(1), 28–46. <https://doi.org/10.1080/23322969.2020.1820898>

- Ehlers, U.-D., & Kellermann, S. A. (2019). *Future Skills: The future of learning and higher education. Karlsruhe*. <https://www.learntechlib.org/p/208249/>
- Elayyan, S. (2021). The future of education according to the fourth industrial revolution. *Journal of Educational Technology and Online Learning*, 4(1), 23–30. <https://doi.org/10.31681/jetol.737193>
- Fayolle, A., Lamine, W., Mian, S., & Phan, P. (2021). Effective models of science, technology and engineering entrepreneurship education: current and future research. *The Journal of Technology Transfer*, 46(2), 277–287. <https://doi.org/10.1007/s10961-020-09789-3>
- Giroux, H. A. (2020). Thinking dangerously: The role of higher education in authoritarian times. *Chowanna*, 54(1), 1–12. <https://doi.org/10.31261/chowanna.2020.54.03>
- Holbrook, J., Chowdhury, T. B. M., & Rannikmäe, M. (2022). A future trend for science education: A constructivism-humanism approach to trans-contextualisation. *Education Sciences*, 12(6), Article 413. <https://doi.org/10.3390/educsci12060413>
- Holfelder, A.-K. (2019). Towards a sustainable future with education?. *Sustainability Science*, 14(4), 943–952. <https://doi.org/10.1007/s11625-019-00682-z>
- Howells, K. (2018). *The future of education and skills: Education 2030: The future we want*. OECD. [http://www.oecd.org/education/2030/E2030%20Position%20Paper%20\(05.04.2018\).pdf](http://www.oecd.org/education/2030/E2030%20Position%20Paper%20(05.04.2018).pdf)
- Igwe, P. A., Okolie, U. C., & Nwokoro, C. V. (2021). Towards a responsible entrepreneurship education and the future of the workforce. *The International Journal of Management Education*, 19(1), Article 100300. <https://doi.org/10.1016/j.ijme.2019.05.001>
- Jeder, D. (2020). Curricular integration and education for the future – A possible solution. *International Journal of Social and Educational Innovation (IJSEIro)*, 7(14), 99–104. <https://www.journals.aseiacademic.org/index.php/ijsei/article/view/170>
- Kavadias, D., Nohemi Jocabeth, E. V., & Hemmerechts, K. (2020). Inequality, civic education and intended future civic engagement: An examination of research in western democracies. In A. Peterson, G. Stahl, & H. Soong (Eds.), *The Palgrave Handbook of Citizenship and Education* (pp. 583–597). Palgrave Macmillan. https://doi.org/10.1007/978-3-319-67828-3_21
- Laszlo, A. (2019). Education for the future: The emerging paradigm of thrivable education. *World Futures*, 75(3), 174–183. <https://doi.org/10.1080/02604027.2018.1463760>
- Luan, H., Geczy, P., Lai, H., Gobert, J., Yang, S. J. H., Ogata, H. ... Tsai, C.-C. (2020). Challenges and future directions of big data and artificial intelligence in education. *Frontiers in Psychology*, 11, Article 580820. <https://doi.org/10.3389/fpsyg.2020.580820>
- Marouli, C. (2021). Sustainability education for the future? Challenges and implications for education and pedagogy in the 21st century. *Sustainability*, 13(5), Article 2901. <https://doi.org/10.3390/su13052901>

- Murphy, M., & Costa, C. (2019). Digital scholarship, higher education and the future of the public intellectual. *Futures*, 111, 205–212. <https://doi.org/10.1016/j.futures.2018.04.011>
- Nordkvelle, Y., Stalheim, O. R., Fossland, T., de Lange, T., Wittek, A. L., & Nerland, M. B. (2019). Simulating: Bridging the gap between practice and theory in higher professional education. In K. Trimmer, T. Newman, & F. Padró (Eds.), *Ensuring Quality in Professional Education Volume I* (pp. 53–72). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-01096-6_3
- Orakçı, Ş. (2020). The future of online learning and teaching in higher education. In A. Al-Sartawi, K. Hussainey, A. Hannon, & A. Hamdan (Eds.), *Global approaches to sustainability through learning and education* (pp. 28–45). IGI Global. <https://doi.org/10.4018/978-1-7998-0062-0.ch003>
- Prakash, G. (2018). Quality in higher education institutions: Insights from the literature. *The TQM Journal*, 30(6), 732–748. <https://doi.org/10.1108/TQM-04-2017-0043>
- Ramírez-Montoya, M. S., Andrade-Vargas, L., Rivera-Rogel, D., & Portuguese-Castro, M. (2021). Trends for the future of education programs for professional development. *Sustainability*, 13(13), Article 7244. <https://doi.org/10.3390/su13137244>
- Richmond, G., Salazar, M. D. C., & Jones, N. (2019). Assessment and the future of teacher education. *Journal of Teacher Education*, 70(2), 86–89. <https://doi.org/10.1177/0022487118824331>
- Rumbley, L. (2020). Internationalization of Higher Education and the Future of the Planet. *International Higher Education*, (100), 32–34. <https://ejournals.bc.edu/index.php/ihe/article/view/14237>
- Teixeira, A. M., Bates, T., & Mota, J. (2019). What future(s) for distance education universities? Towards an open network-based approach. *RIED-Revista Iberoamericana de Educación a Distancia*, 22(1), 107–126. <https://doi.org/10.5944/ried.22.1.22288>
- Tejedor, G., Segalàs, J., & Rosas-Casals, M. (2018). Transdisciplinarity in higher education for sustainability: How discourses are approached in engineering education. *Journal of Cleaner Production*, 175, 29–37. <https://doi.org/10.1016/j.jclepro.2017.11.085>
- Topi, H. (2019). Invited Paper: Reflections on the Current State and Future of Information Systems Education. *Journal of Information Systems Education*, 30(1), 1-9. <http://jise.org/Volume30/n1/JISEv30n1p1.html>
- Zhang, K., & Aslan, A. B. (2021). AI technologies for education: Recent research & future directions. *Computers and Education: Artificial Intelligence*, 2, Article 100025. <https://doi.org/10.1016/j.caeai.2021.100025>