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Brief Paper:
ICT Convergence and Education

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Abstract: The paper considers the main processes of evolution and convergence of information and communication technologies, which have a permanent source for creation and introduction of innovations in learning and education. The modern scientific and technological revolution gives new features to all modern activities, including activities in the sphere of education, influencing it and transforming its phases, form and content, and perhaps understanding in general. Consequently, general understandings about the essence of the provision of educational services and their technological support are also being transformed. Note that, according to scientists, convergence is a new determinant of the development of society, and evolution is a multidimensional natural process of development (becoming).

Key Words: ICT, Education, Activities, Convergence.

I. INTRODUCTION

It is currently believed that the terms "technology convergence" and "convergent technologies" are synonymous, by which a wide range of processes should be understood - from the convergence of the technologies themselves (and their impact on other technologies) to the convergence of certain sciences and the emergence of new fields of knowledge and technology, which in the future will develop in their own trajectories. Thus, speaking of the convergence of technologies, it is not only about rapprochement, but also about interpenetration, mutual influence, which creates the prerequisites for obtaining synergistic technological results to support education in conditions of mass and continuity.

Let us emphasize the fact that humanity in the period of the development of the information society, on the way to the knowledge society [4], is in a state of bifurcation [5], i.e. branching and transforming the ways of its development. In addition, it can be characterized as a fluid modernity [6]. That is why the interest in studying the influence of the processes of evolution and convergence in all spheres, including education, has sharply increased.

The timely identification of external and internal factors of the impact of innovations [3] on the transformation of processes associated with possible changes in the support of education and education not only broadens the understanding of ongoing processes and phenomena, but also largely allows responding to the challenges of the modern information society.

The problems of considering the processes of the influence of transformations [2, 3, 4] on the development and use of information and communication technologies (ICTs) in education and training are becoming increasingly relevant. Historically, the development of ICT is inseparably linked with the development of information epochs and, consequently, with the approaches to education and training inherent in the era, developing and supplementing them. It is this fact that determined the degree of power of their distribution and use in various areas of society. It should be remembered that the introduction of ICT in training is not so much the process of translating all educational materials into the electronic form, with subsequent delivery to the end user, i.e., (information, pedagogic, publishing, etc.), an optimal strategy for managing educational (both electronic and traditional) and human resources for obtaining the final result with the highest possible result quality [12].

II. FORMULATION OF THE PROBLEM

The processes of evolution and convergence, as well as their impact on development as a whole, attracted the attention of the world community of scientists and practitioners. It was determined that with the advent of the computer the following directions of convergence were formed [8]:

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- service convergence provides new advanced functionality for users, which in turn determines the convergence of systems;
- network convergence determines the convergence of technologies and systems, which provides the opportunity for convergence of services;
- device convergence allows manufacturers and users to enrich the available functionality and offer new efficient services;
- the convergence of technologies and sciences is a factor in the development of science and technology, as well as a driving force in the creation of new scientific areas of significant practical importance.

The study of the evolution of multimedia technologies and educational multimedia will allow us to understand much more deeply the nature of the development of conditions that comprehensively influence the final quality of education, the comprehensive provision of comfort for students in the process of acquiring knowledge, skills and experience, understand the deep mechanisms of perception of a wide range of multimedia by humans and predict the prospects for its further use. The formulation of the problem is:

- To consider the evolution of educational activity throughout the 20th century;
- To consider issues related to the impact of the processes of evolution and convergence on education and training;
-Highlight the main stages of transformation, evolution and convergence in the use of multimedia in teaching;
- To present a comprehensive approach to studying the influence of the processes of evolution and convergence on learning;
- To determine the main ways of using the acquired knowledge for the development of curricula and advanced scientific research.

2.1. Evolution of the forms of learning activity

In the context of the development of lifelong learning, for the free advancement of man in the educational space, it is necessary to ensure maximum flexibility and a variety of forms of education. Naturally, the provision of this process is impossible without ICT. In accordance with [9], the forms of learning activity can be defined "as mechanisms for streamlining the educational process with respect to the positions of its subjects, their functions, and the completeness of cycles, structural units of training in time." The search for the right ways to build a common strategy for introducing ICT in the educational process with the purpose of innovative development of quality support and training effectiveness is largely determined by the understanding of decision makers on the variability of the opportunities that are opening up. It should be remembered that the introduction of ICT in training is not so much the process of translating all educational materials into the electronic form, with subsequent delivery to the end user, ie, (information, pedagogic, publishing, etc.), an optimal strategy for managing educational (both electronic and traditional) and human resources for obtaining the final result with the highest possible result quality.

At the present stage of the development of mass support for ICT-based learning, the LMS (Learning Management System) support systems (platforms) play an important role. They support the learning process, provide access to training materials, tests, etc. However, their ubiquitous use almost always happens without due pedagogical design. Thus, it turns out that the lecture as such is replaced by electronic materials from existing textbooks, manuals or guidelines, and all control is reduced to testing. Few of the teachers can answer correctly the question, so how can we teach?

When transitioning to ICT-based learning (especially to distance learning), it is necessary to take into account how ICT will contribute to the development of the "whole system" pedagogical process, and how each component will be created and used.

III. OVERVIEW OF THE MAIN STAGES OF THE IMPACT OF EVOLUTION AND CONVERGENCE ON INNOVATIVE DEVELOPMENT OF THE DEGREE OF INFLUENCE OF ICT IN SUPPORT OF EDUCATION

Each wave of the information revolution was characterized by the fact that it created not only new devices for mass use in the context of achieving a multitude of interdisciplinary goals, but also caused the emergence of new professions, their specialization to meet the huge number of users' needs in various fields, including for education services and training. As a result, the evolution and convergence of both technologies and entire sciences took place, which were necessary for further development.

The mechanisms for supplying knowledge in the form of information required by continuous learning are relatively simple and well-known, the processes, models and methods of their subsequent distributed processing are more complex, which will at least partly meet the ever growing needs of society and ensure the accelerated introduction of innovative knowledge and technologies in the training process.

3.1. Overview of the main stages of the evolution of multimedia

Let us briefly consider the evolution of the understanding of the term "multimedia". It is known that in the 60s of the XX century. This term was used to describe extravagant for that time theatrical shows, using different types and forms of information: slides, film, video, audio, lighting effects and live music. In the late 70-ies, this term was used to describe the aggregate means of processing and presentation of video, audio and print information. Over time, the understanding of the term has

greatly expanded. To date, the scientific literature uses the following definitions of the term "multimedia":

Multimedia is the sum of technologies that allow a computer to enter, process, store, transmit and display data types such as text, graphics, animation, digitized still images, video, audio, speech. Multimedia is a modern computer information technology that allows you to combine text, sound, video, graphic and animation in a computer system.

- Multimedia - an interactive system that provides simultaneous operation of sound, animated computer graphics, video frames, static images and texts. For example, one container object (English container) can contain textual, audio, graphic and video information, as well as, perhaps, a way of interacting interactively with it.
- The term multimedia is also often used to designate storage media that allows you to store large amounts of data and provide fast enough access to them (the first carriers of this type were CDs). In such a case, the term "multimedia" means that a computer can use such media and provide information to a user through all possible types of data, such as audio, video, animation, image and others, in addition to traditional ways of providing information such as text.

ICT technologies in teaching: mass creation of information, educational and training environments, use of multimedia classes, audiences, interactive video systems, social services and the like.

Multimedia support: a new impetus in the development of multimedia has given the possibilities of the world wide web, technologies for supporting e-learning (in particular, web 2.0, etc.), near-zone communication technologies (in particular, mobile electronic technologies and special means). There is a massive use of ICT to support multimedia in learning.

The main result: orientation to continuous mass education and access to information for all, a clearly expressed innovative vector of development, significant changes in the forms and content of training, the optimal integration of individual and group work, the development of information culture. The web becomes the main distribution medium for SCORM objects. Avalanche-like growth in the number of electronic learning resources, increasing the use of multimedia in the educational process, increasing interest in the development of a fundamental scientific basis in the field of electronic innovative scientific and educational spaces, the activation of global initiatives in the field of support for education, etc.

3.2. The influence of multimedia on the learning process.

The justified and effective use of multimedia to support distance learning complements the analytical and computing capabilities of the computer with the ability for a synthetic, imaginative and comprehensive presentation of the academic discipline [13]. Researchers T. Hed and E. Hede in the work "Multimedia effects on learning: Design implications of an integrated model" [14] proposed a model that describes the factors influencing multimedia on learning. The model allows us to lay algorithms for the effectiveness of the educational multimedia resource at the design stage. In addition, it is necessary to take into account the specific characteristics of multimedia, which include: potentially high congestion of perception, structural and semantic complexity, a large amount of information transmitted through training systems of varying complexity. Manipulation of information that is presented in training multimedia is often an integral part of the user's activities. The design of multimedia should take into account the traditional ways of processing information by people and be based on the psychological and pedagogical principles of students' perception of information.

IV. CONCLUSION

The processes of evolution and convergence had a significant impact on the development of the use of ICT in education and training. Naturally, the research of these processes is still in its infancy. Many tasks remain to be solved. However, their solution will provide an opportunity to fully understand the nature of modern transformation and respond to the challenges of the information society. A new history is forming - the history of the development of ICT in teaching under the influence of the processes of evolution and convergence. Avalanche-like growth in the number of e-learning resources [12], increasing the use of multimedia in the educational process, increasing interest in the development of a fundamental scientific basis in the field of electronic innovative scientific and educational spaces, enhancing global initiatives in the field of support for education, etc.

REFERENCES

[1] Voronkin A.S, “Management of the quality of distance education,” Modern technology and technology, A collection of works XVI International Scientific and Practical Conf. students, graduate students and young scientists (Tomsk, April 12-16, 2010), Tomsk, T. III, P. 83-84, 2010.

[2] Manako AF, “CT in learning: a view through the prism of transformations,” Educational technology and society, (Educational Technology & Society), T. 15, No. 3, P. 392-413, 2012.

[3] Dolzhenko O, Yanushkevich F, “New methods and technical means in university didactics,” Sovrem. supreme. School, Vol.38, No. 2, pp. 91-114, 1982.

[4] Rakitov AI, “Science and science of the XXI century,”

Bulletin of the Russian Academy of Sciences, Vol. 73, No. 2, pp. 134-138, 2003.
[5] Alieva N.Z, Zakharov A.P, "Transformations of the scientific and innovative development of society in the context of convergent technologies [Electronic resource]," Modern problems of science and education, No. 4, 2013.
[6] Bauman Z. Globalization, *Consequences for man and society*. Z. Bauman: Per from the English, M. L. Korobochkina, M.: The whole world, 2004.
[7] Manako AF, "About the properties of educational systems," New information technologies in education for all ITEA-2009, proceedings of the 4th-th International Conference (Kiev, November 24-26, 2009), 2009.
[8] Manako AF, "The Evolving Convergence of the Scholastic Technicians of the Autumn osvgti that Navrany," New Technology in Technology for ITA-2011, *the proceedings of the 6th International Conference* (Kshw, 22 - 23 листопада 2011), K . MNNC, P. 20-35, 2011.
[9] Novikov A.M, *Methodology of education*. Moscow: Egves., 488 p, 2006.
[10] Kameneva TN, "Pedagogical technologies in the electronic educational space: traditions and innovations," Educational technology and society, Vol.16, No.1, pp. 609 -626, 2013.
[11] Belousova LI, "NV Olefirenko Didactic potential of digital educational resources for junior schoolchildren," *Educational Technologies and Society*, Vol. 16, No. 1, pp. 575-585, 2013.
[12] Manako AF, "Network society and educational-oriented technologies for all," *Control systems and machines*, No. 4, pp. 50-58, 2004.
[13] Gritsenko VI, Manako AF, "Use of educational multimedia in electronic textbooks and distance courses delivered via the Internet," *International Scientific and Naval Center of Informational Technologies and Systems NAS of Ukraine, VITUS*, 123 s, 2003.
[14] Balykina EN, Komlichenko VN, Sidortsov V.N, "Multimedia systems. Attempt of comparative characteristics [Electronic resource]," *Circle of ideas: models and technologies of historical informatics*, 345 c, 1996.