

Practice-Oriented Technologies in the Educational Process as the Basis for the Economic Development of Society

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Abstract— At present, the world economy is moving to a new level of development. New technologies are developing at an accelerated pace and most production processes are being automated. These variations lead to a rapid change of economic and social order in society. Modern society and economics are on the path to digitalization. The world is entering the era of the digital economy, which dictates its requirements for education and the acquisition of knowledge. The new economy requires specialists of a new type in the labor market. Previously mentioned leads to fundamental changes in the professional and educational sphere. The digital world is a world of rapid change and a wealth of information. New realities require new competencies and skills from specialists.

The formation of a set of skills, having mastered that, employees will be able to gain a foothold in one or another activity of the future, being ready for subsequent retraining, comes to the first place when receiving education. In this regard, the educational process is changing from traditional to practice-oriented, which allows you to obtain the necessary set of skills and competencies quickly.

In the framework of the study, the team of authors developed and described a mechanism for using practice-oriented technologies in the educational process of the university in order to increase the business competencies of teachers and the quality of education in general. The using of this mechanism in practice

in educational institutions will increase the involvement of students into educational process, students will be able meet the modern realities of changing society, the main priority of which is adaptation to rapidly changing working conditions.

Keywords: globalization of the economy, advanced practice-oriented technologies, accelerated development, continuous improvement of education quality, clip thinking, quality of education, competency-based approach

I. INTRODUCTION

The modern stage of society development is characterized by a change in educational paradigms, that is, a transition to new practice-oriented [1, 2, 3, 4-14] pedagogical technologies, the essence of which is to develop the creative potential of students, develop skills for quick inclusion in innovative processes and abilities correlate their professional activities depending on objective and subjective conditions.

The avalanche-like approach of the financial technology era requires constant self-development from teachers. It is not competition between teachers that comes to the fore in higher education institutions, but a pool of efforts for timely response and decision making in the context of the globalization of the

economy and society as a whole. In order to ensure the successful functioning of the educational organization implementing the higher education program, it is necessary to consolidate the efforts of all participants in the educational process. Only in cooperation with financial institutions and employers education can ensure sustainable economic development for society. Nowadays, statistics are not optimistic, most university graduates are employed not with the specialization was gotten, and the reason for this is the strict requirement on the part of employers - the availability of work experience. At present, in the leading universities of the country, at a fairly high level, the academic competencies of all teachers have been formed, what are steadily leading us to by professional standards, and how much business competencies have formed today? Meeting the realities of the modern world, for all participants of the educational process, in preparing graduates of any profile, the task of strengthening the practical training of future specialists comes to the fore. The team of authors considers one of the priority areas in solving the problem as the introduction of new, effective teaching technologies [15]. Currently, educational technologies based on active and interactive learning methods are relevant, which include design or problem-oriented methods [1, 2, 3, 4-15].

II. LITERATURE REVIEW AND RESEARCH METHODS

Many domestic authors, such as S. Alferyev, S. Berlin, M. Bokarev, Yu. Vetrov, E. Gerasimov, T. Dmitrienko, N. studied the problems of using and implementing practice-oriented training, substantiating practice-oriented approaches in vocational training Klushina, D. Korneev, E. Mychko, I. Petrova, I. Rudneva, A. Ryblova, V. Severov, E. Stakhieva and Kupriyanova LM, Mityagina EV. The theoretical basis of the research has developed from ideas related to the correlation between traditional learning and using progressive new methods (Edgar Dale, Syrotyuk SD, Nguyen PT, Lydia, EL, Hashim W., Shankar K., Maselena A., D. Bylieva, V. Lobatyuk, A. Safonova, Rubtsova A., Awadh AY, Al-Qahtani, SE Higgins, Fan Li, Jianxin Yang, Jianmei Wang, Shuangshou Li, Li Zheng, Volman MLL, Margarov G., Mitrofanova E., Konovalova V., Mitrofanova A., Trubitsyn K.), on the laws and principles of the formation of modern approaches to the training of the new information society (Hoşgörür, V., Bilasa, P., NC Jackson, Pucciarelli F., Kaplan A., Välimaa J., Hoffman D., Assar S., Shin S., Brush TA, Saye JW, Adler RR, Whiting RH, Wynn-Williams K., Merseeth K., Farashahi M., Tajeddin M., Han I., Eom M., Shin WS, Gary Sykes, Tom Bird, Almeida J., Daniel AD, Figueiredo C.), on professional competence and professional abilities necessary for the successful development of the personality and its adaptation to rapidly changing labor market conditions (Prikhodko O. G., Kolchurina I.Yu.). The work of foreign researchers Awadh A.Y., Al-Qahtani, S.E. played a decisive role in studying the problems of applying advanced technologies in the educational process. Higgins, Pucciarelli F., Kaplan A., Farashahi M., Tajeddin M., Kenneth Zantow, Dave S. Systematizing and summarizing the available capabilities of information technology (David Reinsel, John Gantz, John Rydning, Toffler A. The Third Wave, Adobor H., Daneshfar A., Steven J., Avramenko A., Zelin II, RC,

Mendoza JMF, Gallego-Schmid A., Azapagic A.) The authors concluded that the modernization of higher education is inevitable in order to improve the quality of education, increase accessibility of education, ensuring the harmonious development of the individual and the information society as a whole.

III. METHODS

The empirical basis of the study was the study and analysis of Russian and international experience of using practice-oriented [1, 2, 3, 4-14] technologies in the educational process of leading universities. The methodological basis of the study was the scientific and educational literature, which was recited in the list of sources. The systematic approach made it possible to comprehensively and holistically study the problems of «containing» the use of these technologies in practice. When setting the goal and main objectives of the study, the team of authors used the abstract-logical research method. The present study also applied the methods of synchronous and diachronous analysis of the use of advanced practice-oriented technologies in Russia and abroad. During the discussion, heuristic and logical methods were used. The reliability and validity of the results confirms the use and application of such methods as statistical and experimental.

IV. RESULTS

Modern society puts forward double demands in relation to education [18, 19-24]. On the one hand, it is the preservation of the fundamental nature of education, and on the other hand, the constant updating of its content by strengthening practical focus. In such conditions, the team of authors considers the most effective strengthening of the role of practice-oriented [1, 2, 3, 4-14] technologies in the educational process, that is, a harmonious combination of theoretical knowledge in solving practical issues. Without completely reducing the importance of the theoretical block, the practice-oriented approach aims educational organizations [18, 19-24] to develop such forms of educational process that allow the effective use of case study [4, 6-8], master classes, trainings, business games [5], design and problematic techniques, independent research (Figure 1).

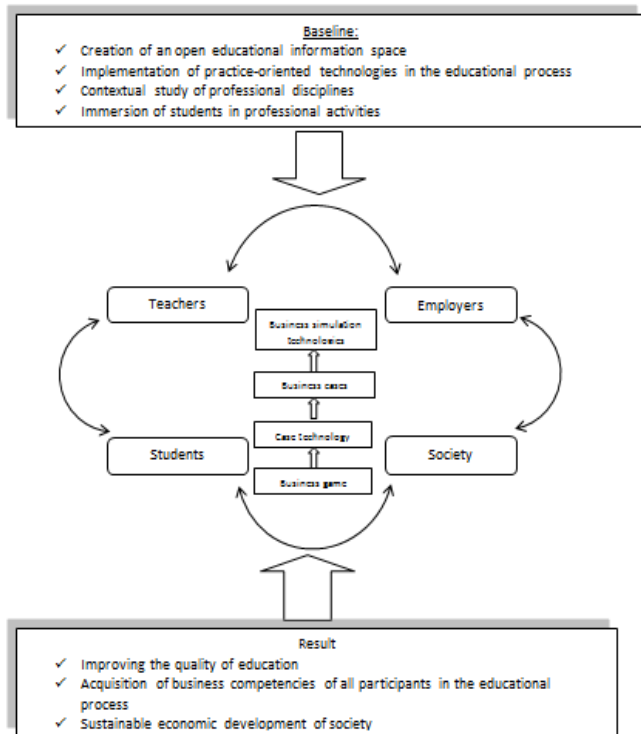


Fig. 1. The mechanism of using practice-oriented technologies in the educational process

The using of this mechanism in the educational process of a university [18, 19-24] involves certain difficulties, which are caused by two main reasons, this requires:

- 1) certain conditions and qualifications of teachers, the investment;
- 2) continuous improvement of the professional competencies of the teacher through vocational training.

At present, in Russia is implementing a two-level higher education [18, 19-24], which is due to Russia's entry into the Bologna process in 2011. The division into bachelor's and master's degrees in itself provides great opportunities for students, including the opportunity to get two completely different specialties in 6 years. Therefore, having completed training in the technical field, students enter the master's program in the humanitarian field and vice versa. This aspect has a positive effect on the demand for graduates by employers.

However, this is also associated with some difficulties: mastering the master's program for students with non-core basic education is difficult, since the focus of master's programs involves an in-depth study of certain aspects of a specific training direction, the development of which requires students with non-core basic education more efforts than students, completed training in a specialized direction of undergraduate training. In this case, there is a need to maintain a certain balance between the various basic levels of training of students [18, 19-24] in the magistracy.

Two-tier education required higher education teachers to be more professional, to constantly improve their skills in

using the latest teaching technologies for future bachelors and undergraduates.

Nowadays the problem of advanced training is quite acute in every university of the country, because it is required from their organization to obtain a full range of necessary information in the field of the latest scientific achievements, as well as advanced foreign and domestic experience in any field. However, unfortunately, in practice these courses are sometimes formal. In this case, the solution of the problem is also possible through the implementation of practice-oriented technologies in the realization of teacher development programs [1, 2, 3]. Using such tools as case studies [5-14], basket-methods, project-training methods, that is, methods based on imitation of problems encountered in the daily work of teachers, the effectiveness of obtaining business competencies [19-24] would be much higher.

Present education needs modernization to ensure the sustainable economic development of society as a whole. Today, employers demand from university graduates, not only professional and general cultural competencies, but also business competencies, such as the ability to propose and develop business ideas, find innovative solutions and evaluate the current situation, and offer relevant solutions. Freedom of expression and choice of educational path for students today is a priority in choosing an educational institution. The degree of involvement and designing of one's own education, depending on the needs of individual and creative self-realization of students, is a task facing higher education today.

The main problem of the low professional competence of graduates, according to the authors, and their uncompetitiveness in the labor market is the lack of practice in solving problems in the field of future professional activity. The proposed mechanism for using a practice-oriented [1, 2, 3, 4-14] approach is based on the close relationship between employers, teachers and graduates.

A significant step in this direction can be called the contest of student work of the project «Professional training 2.0», organized by the platform «Russia - the country of opportunities» and the All-Russian Popular Front. The site «Profstajirovki.rf» [25] today offers cases formed by enterprises in the real sector of the economy so that students can plunge into the problems of enterprises while still studying at the university. Nevertheless, according to the authors, the conditions of this site need to be improved in order to provide students with the opportunity to gain work experience in the learning process at the university.

The mechanism described by the authors team for using practice-oriented [1, 2, 3, 4-14] technologies in the educational process, it is assumed that employers throughout the entire training period will attract students through various types of practices (training, production, pre-diploma) for solving specific practical problems. This will allow education to follow the program of accelerated development, and society as a whole will develop steadily.

V. DISCUSSION

The development of information technology and computer technology has triggered the development of the so-termed

information society. The information society is a society in which industrial, social and economic development depends on the production, processing, storage and dissemination of information [16].

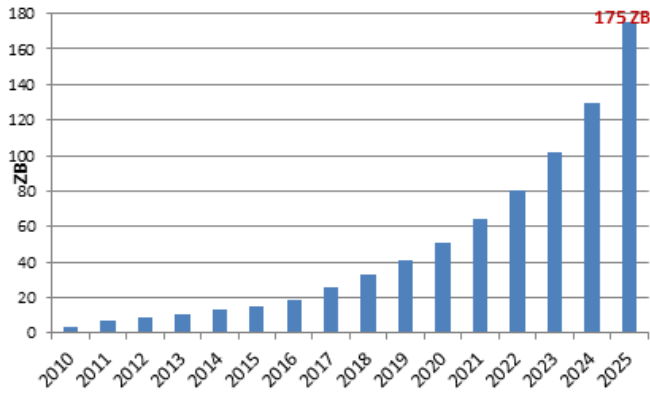


Fig. 2. The amount of digital information in the world [The Digitization of the World - From Edge to Core November 2018 Doc # US44413318]

According to the same IDA report [26], less than 1% of all existing information in the world is analyzed. Every day we have to process a huge amount of data. Today, people send messages from mobile phones, through social networks, view news feeds, videos, materials on the Internet, read posts on social networks, every second a modern person processes information received from various sources.

Such global informatization [27, 28-31] leads to a change in the thinking of the younger generation. The constant change of information requires its rapid assimilation, so the so-termed "clip (fragmentary) thinking" is formed among young people. For the first time, this concept was introduced by the American scientist E. Toffler [32], who presented the concept of clip culture as a characteristic of a society moving from mass and serial production to information.

Today, due to the pace of information, modern students do not need details for its assimilation, students need a general picture of what is happening. Clip thinking allows you to absorb a large amount of information without focusing on details, but perceiving only a general idea. This is facilitated by presentation of information itself [8] around us. Information on the Internet [28-31] is represented by short text messages, basically all information is visualized by pictures, infographics, slide shows, flash animations. Visualization of information using images and videos speeds up its processing. Films, cartoons, series, commercials, news, and even computer games show scenes in small blocks that often succeed without a logical connection. All of this leads to a fragmented perception of information, having not yet mastered one topic - a modern person switches to another. This perception allows you to increase the speed of processing and filtering information without overloading the brain. However, such a fragmentary perception of information does not allow modern students [33] to analyze the situation, conduct relationships, structure and construct thoughts in a logical order. It should be noted that modern students lose the ability to analytical and critical thinking due to the reality in which we live. The above-described features of the perception of

information by the young generation pose the challenge for higher education institutions [33] to transfer the education system to a qualitatively new level. Traditional methods of teaching [34] and conveying information to students do not work [33], and do not allow them to absorb knowledge.

Traditional teaching methods [34] are aimed at a different type of thinking, which was characteristic before the formation of the information society [33], textual and sequential. The traditional methods of teaching at the university include lecturing, conducting discussion seminars and practical classes, conducting laboratory work. As a rule, these methods involve a monotonous and consistent presentation of the material, which allows us to come to some kind of conclusion. Nevertheless, since students with clip thinking experience the perception of information in a diffragmental and visual way (without analyzing it), they cannot perceive the information given to them in the classroom.

Based on the foregoing, the team of authors came to the conclusion that it is necessary to change the methods and methods of teaching and delivering information to modern students according to the requirements of the new information society. Modern education requires the introduction of active teaching methods.

In 1969, Edgar Dale [35] a teacher at Ohio State University (USA) identified the most effective teaching methods (Figure 3).

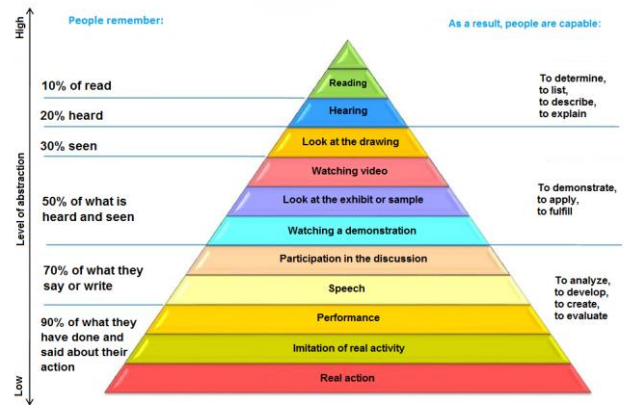


Fig. 3. Pyramid of training by Edgar Dale (Source: http://do-centr.ru/?attachment_id=2655)

According to Dale's theory, the most effective way to assimilate information, memorize it, and then use it is to perform a real action, i.e. putting the acquired knowledge into practice. According to the authors, this method in education makes it possible to implement the technology of "business simulation" in full. Business simulations allow students to gain specific skills and competencies.

The main task of business simulation is to solve a number of interrelated problems to achieve a specific result. Business simulation allows each student to try himself in a certain business role and evaluate the effectiveness of the adopted economic, production and management decisions. Computer business simulations allow you to use the features of modern

clip thinking of students, as they are made in the computer game form. At the same time, business simulators allow you to develop analytical and systemic thinking, as well as learn to critically assess the situation, i.e. to develop those skills that are not enough for modern students.

VI. CONCLUSION

In the system of modern education, in order to achieve sustainable economic development of society, the development and implementation of practice-oriented [1, 2, 3, 4-14] technologies, such as business games, business and case technologies, technology of business [36] simulations. These technologies contribute to increasing the level of motivation of students, the attractiveness of the cognition process and the quality of education in general. The need to use a practice-oriented [1, 2, 3, 4-15] approach in education is caused by the desire of society to provide an improvement in the quality of people's life based on a comprehensive solution of social, educational, economic problems, and, consequently, the formation and development of industry and regional services markets.

REFERENCES

- [1] Syrotyuk S.D. Implementing a practice-oriented learning principle in a higher school / Syrotyuk SD, Nguyen PT, Lydia, EL, Hashim W., Shankar K., Maselena A. // *Religacion-revista de ciencias sociales y humanidades* Volume: 4 Issue: 18 Special issue: SI p. 601-607.
- [2] Volman M.L.L. Plea for an educational sciences view on personalized learning / M.L.L. Volman // *Pedagogische studien - Volume: 96 Issue 1. - S. 64-75.*
- [3] Margarov G. Effectiveness of implementing practice-oriented higher education programs based on stakeholders feedback / Margarov G., Mitrofanova E., Konovalova V., Mitrofanova A., Trubitsyn K. // *International Conference on Research Paradigms Transformation in Social Sciences (RPTSS 2017)* Series of books: *European Proceedings of Social and Behavioural Sciences* Volume: 35 Pages: 906-914.
- [4] Almeida J., Daniel A. D., Figueiredo C. The future of management education: The role of entrepreneurship education and junior enterprises <https://doi.org/10.1016/j.ijme.2019.100318> <https://scihub.se/downloads/2019-10-06/4f/almeida2019.pdf>
- [5] Kenneth Zantow, Dave S. Knowlton and David C. Sharp More Than Fun and Games: Reconsidering the Virtues of Strategic Management Simulations <https://doi.org/10.5465/amle.2005.19086786>
- [6] Adobor H., Daneshfar A. "Management simulations: determining their effectiveness", *Journal of Management Development*, Vol. 25 No. 2, pp. 151-168. <https://doi.org/10.1108/02621710610645135>
- [7] Steven J. Armstrong and Anis Mahmud, *Experiential Learning and the Acquisition of Managerial Tacit Knowledge* <https://doi.org/10.5465/amle.2008.32712617>
- [8] Avramenko A. (2012), "Enhancing students' employability through business simulation", *Education + Training*, Vol. 54 No. 5, pp. 355-367. <https://doi.org/10.1108/00400911211244669>
- [9] Zelin II, R. C. An Exploration Of The Effectiveness Of An Audit Simulation Tool In A Classroom Setting. *American Journal of Business Education (AJBE)*, 3(9), 7-12. <https://doi.org/10.19030/ajbe.v3i9.474>
- [10] Mendoza J. M. F., Gallego-Schmid A., Azapagic A. Building a business case for implementation of circular economy in higher education institutions. *Journal of Cleaner Production*. doi:10.1016/j.jclepro.2019.02.045
- [11] Chernyshev A. Y. Practical Training in MSUCE as One of the Basic Stages of Continuing Education in Construction. *Procedia - Social and Behavioral Sciences*, 142, 623–627. doi:10.1016/j.sbspro.2014.07.676
- [12] Yang S., Hamann K., Haefner B., Wu C., Lanza G. A Method for Improving Production Management Training by Integrating an Industry 4.0 Innovation Center in China. *Procedia Manufacturing*, 23, 213–218. doi:10.1016/j.promfg.2018.04.019
- [13] Rentzos L., Doukas M., Mavrikios D., Mourtzis D., Chryssolouris G. Integrating Manufacturing Education with Industrial Practice Using Teaching Factory Paradigm: A Construction Equipment Application. *Procedia CIRP*, 17, 189–194. doi:10.1016/j.procir.2014.01.126
- [14] Müller-Frommeyer L. C., Aymans S. C., Bargmann C., Kauffeld S., Herrmann C. Introducing Competency Models as a Tool for Holistic Competency Development in Learning Factories: Challenges, Example and Future Application. *Procedia Manufacturing*, 9, 307–314. doi:10.1016/j.promfg.2017.04.015.
- [15] Prikhodko O.G. On the formation of competencies of a university graduate using the methods of project training / O. G. Prikhodko, I.Yu. Kolchurina // *Trends in science and education in the modern world*. 2016. No. 14-2. S. 46-48.
- [16] Kupriyanova L.M. Information Society: the current stage of development of the new economy / L.M. Kupriyanova, O.N. Efimova // *World of the new economy*. 2014. No3. URL: <https://cyberleninka.ru/article/n/informatsionnoe-obschestvo-sovremennyy-etap-razvitiya-novoy-ekonomiki> (accessed: 10/19/2019).
- [17] Mityagina E.V. "Clip consciousness" of youth in the modern information society / E.V. Mityagina, N.S. Dolgoplov // *Bulletin of the Nizhny Novgorod University. N.I. Lobachevsky. Series: Social Sciences*. 2009. No3. URL: <https://cyberleninka.ru/article/n/klipovoe-soznanie-molodezhi-v-sovremennom-informatsionno-obschestve> (accessed: 10/19/2019).
- [18] Fan Li Integration of digitization trends in learning factories / Fan Li, Jianxin Yang, Jianmei Wang, Shuangshou Li, Li Zheng // *Research. Experience. Education Book Series: Procedia Manufacturing* Volume: 31 Pages: 343-348.
- [19] Shin S., Brush T. A., Saye J. W. Using technology-enhanced cases in teacher education: An exploratory study in a social studies methods course. *Teaching and Teacher Education*, 78, 151–164. doi:10.1016/j.tate.2018.11.018 <https://scihub.se/10.1016/j.tate.2018.11.018>
- [20] Adler R. R., Whiting R. H., Wynn-Williams K. Student-led and teacherled case presentations: Empirical evidence about learning styles in an accounting course. *Accounting Education*, 13(2), 213e229. <https://doi.org/10.1080/09639280410001676620>
- [21] Merseth K. Cases and case methods in teacher education. *Handbook of research on teacher education* (pp. 722-744). Macmillan, New York, NY
- [22] Farashahi M., Tajeddin M. Effectiveness of teaching methods in business education: A comparison study on the learning outcomes of lectures, case studies and simulations. *The International Journal of Management Education*, 16(1), 131–142. doi:10.1016/j.ijme.2018.01.003 <https://scihub.tw/10.1016/j.ijme.2018.01.003>
- [23] Han I., Eom M., Shin W. S. Multimedia case-based learning to enhance pre-service teachers' knowledge integration for teaching with technologies. *Teaching and Teacher Education*, 34, 122–129. doi: 10.1016/j.tate.2013.03.006 - the use of new technologies in education
- [24] Gary Sykes, *Tom Bird Review of Research in Education* <https://doi.org/10.3102/0091732X018001457>
- [25] Site Profstajirovki.rf. – Access mode: <https://xn--80aeliblxdekein0a.xn--p1ai/> (accessed: 10/19/2019).
- [26] David Reinsel Global Datasphere Expansion is Never-ending / David Reinsel, John Gantz, John Rydning // *The Digitization of the World – From Edge to Core – November 2018 Doc# US44413318* <https://www.seagate.com/files/www-content/our-story/trends/files/idc-seagate-dataage-whitepaper.pdf>.
- [27] Bylieva D. Correlation between the Practical Aspect of the Course and the E-Learning Progress / D. Bylieva, V. Lobatyuk, A. Safonova, Rubtsova A. // *Education sciences* Volume: 9 Issue: 3 - 2019 - www.mdpi.com/journal/education
- [28] Jackson N. C. Managing for competency with innovation change in higher education: Examining the pitfalls and pivots of digital transformation <https://doi.org/10.1016/j.bushor.2019.08.002>

- [29] Pucciarelli F., Kaplan A. Competition and strategy in higher education: Managing complexity and uncertainty. *Business Horizons*, 59(3), 311–320. doi:10.1016/j.bushor.2016.01.003
- [30] Välimaa J., Hoffinan D. Knowledge society discourse and higher education
<https://doi.org/10.1007/s10734-008-9123-7>
- [31] Assar S. Information and Communications Technology in Education. *International Encyclopedia of the Social & Behavioral Sciences*, 66–71. doi:10.1016/b978-0-08-097086-8.92104-4.
- [32] Toffler A. *The Third Wave*. / Toffler A. : William Morrow and Company inc. N.Y., 1980. 544 p.
- [33] Hoşgörür V., Bilasa P. The problem of creative education in information society. *Procedia - Social and Behavioral Sciences*, 1(1), 713–717. doi:10.1016/j.sbspro.2009.01.125.
- [34] Awadh A.Y. Effects of traditional, blended and e-learning on students' achievement in higher education / Awadh A.Y., Al-Qahtani, S.E. Higgins // *Journal of traditional, blended and e-learning in students' achievement in higher education* Volume: 29 Issue: 3 Pages: 220-234.
- [35] Edgar Dale *Audiovisual methods in teaching* / Edgar Dale – New York : Holt, Rinehart and Winston, 1969.
- [36] Lyman P. How much information 2003 / P. Lyman, H.R. Varian // *Wayback Machine*. Release of the University of California. Oct. 27, 2003.
http://web.archive.org/web/20180219162428/https://chnm.gmu.edu/digitalhistory/links/pdf/preserving/8_5a.pdf