Teacher's Readiness to Work under the Conditions

of Educational Space Digitalization

Rina Samatovna Kamahina[1], Tatiana Vladimirovna Yakovenko[2] & Evgenia Vladimirovna Daibova[1]

[1]Kazan Federal University, Russia

[2]State Autonomous Educational Institution of Additional Professional Education "Institute of the Development of Education of the Republic of Tatarstan

Correspondence: Evgeniya V. Gutman, Kazan Federal University, Russia. E-mail: mega.sppa@mail.ru

Abstract

The information environment of the Internet, turns into the powerful educational tool. This article explores the issues of digital transformation of an educational space. These are the results of the monitoring study on the problems of the teacher's readiness to effectively use digital tools for the organization of the educational process: electronic forms of textbooks, educational applications, online services and educational platforms. The advantages and disadvantages of digital transformation are further explored. The binary learning effect of digital educational tools is acknowledged, as the Educational nature is not only the content of the resource, but also the process of working with it, which contributes to the development of not only the student, but also the professional skills of the teacher. The rapid development of digital technologies and methods of network integration, allow for the implementation of advanced learning technologies that take into account the processes of human self-organization and social communication in the conditions of a digital transformation.

Keywords: digitalization, transformation, digital technologies, digital society, digital didactics, digital educational tools

1. Introduction

One of the developmental features of modern society is the large-scale introduction of digital technologies Khorrami, F. T., Fallah, M. H., & Abadi, H. Z. M. (2015). Their use is becoming an integral part of our daily life.As reflected in the Strategy for the Information Society Development in the Russian Federation for 2017-2030 Khorrami, F. T., Fallah, M. H., & Abadi, H. Z. M. (2015), which describes the process of digital transformation not only in the direction of new economic relations (digital economy), but also in creating a digital (information) society in general. Digital society is considered as a post-industrial society, a new historical phase of civilization development, in which the main production products are the information and its highest form - knowledge. The goal of digital transformation is the creation of a high-tech infrastructure - digital space Robert, I. V. (2019).

Education is not left aside from the changes For example, the structure of educational material has changed: hypertext, multimedia, open educational content, automation of monitoring and evaluation tools. At the moment, many scientific publications, encyclopedia and reference materials are either fully digitized or in the digitization process Nugumanova, L. N., & Yakovenko, T. V. (2018). Methodological approaches to the processes of receiving and transmitting information have also changed; they have become instant, interactive and manageable. The range of educational activities has expanded (search, processing, formalization, production, replication, etc.) Antopol'skii, A. B. (2015). , new organizational forms and training methods emerged, both real and virtual. The teacher's arsenal acquired fundamentally new means of organizing the educational process appeared: automated systems for monitoring learning outcomes, professionally oriented social networks, interactive electronic textbooks, supplemented and virtual environments. Society has defined new guidelines for the formation of the school of the future in the process of transition to the digital phase of its development: an activity approach and personalization of education, integration of pedagogical and information technologies, transition to the open education content Antopol'skii, A. B. (2015).. It should be noted that despite the intensive technical progress, education still relies on traditional forms and methods Juszczyk-Rygałło, J. (2017).

Changes that have occurred in the educational space have led to the actively developing didactic-technological paradigms: open education network; distributed education; high-tech education; convergent education (Juszczyk-Rygałło, J. (2017)). The concept of "digital didactics" is invariably entering the educational space. gives the following definition of "digital didactics": the science of organizing the learning process in a digital society" (Matandare, 2018; Çelik-Şahin & Schmidt, 2014).

Children born between 8 and 12 are considered to be born in the Internet era Matandare, M. A. (2018). The digital environment for them is a natural cultural and technological background of life, as they master digital technologies earlier than reading and writing. For them, it is easy to work in search engines (Yandex, Google, Yahoo, Bing, Wolfram, Alpha,) instantly receiving a ready-made answer, which undoubtedly does not contribute to the development of memory and analytical, communicative abilities. The sought information is presented in a concise form, it is maximally visualized (infograms, pictograms, charts, graphs, etc.), which leads to a superficial perception of information. The consequences of this are manifested in the reduction of discursive thinking, which leads to primitivization not only of the substantive aspects, reflecting the surrounding reality, but also to a misunderstanding of the substantive component of information Semin, A. N., & Kurdymov, A. V. (2018).].-However, intelligent and sound use of the Internet and electronic information resources will allow students developing new skills and effectively controlling the process of acquiring knowledge Semin, A. N., & Kurdymov, A. V. (2018).

2. Methods

Theoretical and empirical methods were adopted for this research, specifically Matandare, M. A. (2018).: study, analysis of domestic, foreign scientific and methodological literature, pedagogical experience, as well as observation, testing, questioning, pedagogical experiment, survey, conversation, study of school documentation and student products.

3. Results

The information environment of the Internet is becoming a powerful educational tool aimed at developing critical thinking, effective forms of communication and collaboration, readiness for self-development and self-education throughout life.

Starting from 2016, within the state program "Education Development" for 2013–2020, a priority project in the field of education "Modern Digital Educational Environment in the Russian Federation" is being implemented The project defines the formation of a digital educational environment as one of the global tasks, as the research focus is not only about the technical aspect "digitizing" individual processes, but also about changing the structure and content of the educational process. So, Today teachers use electronic forms of textbooks, educational applications, online services and educational platforms.

The question arises: is the teacher ready to function effectively in a digital environment? In 2019, the State Autonomous Educational Institution of Further Professional Education "Institute for the Education Development of the Republic of Tatarstan" conducted a survey among teachers of the Republic of Tatarstan. 723 people took part in the survey. The majority of respondents are teachers with experience of more than 25 years (40.5%) (Fig. 1).
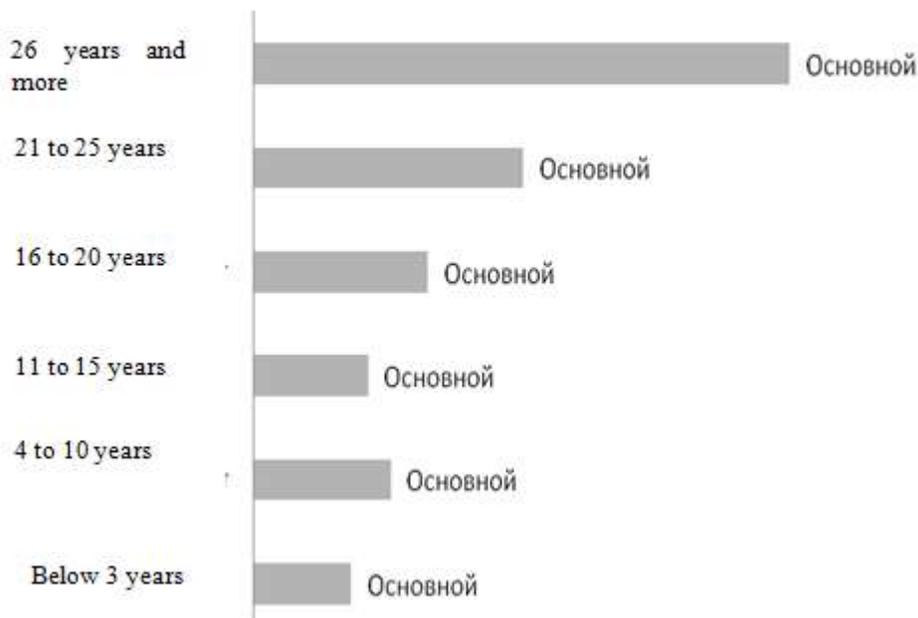
Figure 1. Pedagogical experience of survey participants

The bulk of survey participants (51.8%) are rural teachers (Fig. 2).

Figure 2. Location of educational organizations of survey participants

Teachers were asked the following questions:

1.   What digital tools/means do you use in the educational process?
2.   What digital technologies do you use in the educational process?
3.   What technical tools do you use in the educational process?
4.   Do you have experience in using modern digital technologies and means (DTM) in the educational process?
5.   Difficulties you encounter when using DTM in the educational process?

To the first question, 92.2% of respondents have answered that they use electronic textbooks, digital educational environments and online services to organize the educational process, and 7.8% do not use them. Popular among the respondents: educational applications; online services (Tagul, Learningapps, puzzle generator, Crossword Factory, Emaze and other web 2.0 services).

To the second question, only 0.6% of respondents answered that they do not use digital technologies to organize the educational process, indicating the main reason: "Insufficient level of ICT competence", they cannot independently

understand applications and online services. The overwhelming majority of survey participants use search engines, professional networks, mobile applications, virtual and augmented reality technologies, additive technologies, etc.

The use of digital tools is impossible without technical training tools, such as a computer, video projector, interactive whiteboard, etc. Technical means for organizing the educational process are used by 99.7% of respondents, and only 0.3% do not use them, indicating a lack of technical capabilities ("bad" Internet, outdated or broken equipment).

Answering the fourth question, 82.1% of respondents say that they have experience in using modern digital technologies, but only 2.1% consider themselves to be experts in this matter.

The fifth question revealed the main difficulties that teachers face when using digital tools: poor quality of Internet connection, outdated equipment, lack of necessary software, lack of sufficient experience. Attention should be paid to the fact that the proportion of teachers who do not experience difficulties in using digital tools was only 1.4%.

Survey participants point out a rather high didactic potential of digital tools, as 66.9% of respondents point to an improvement in the quality of educational process and its results, and this is the main incentive for the teacher's personal and professional development.

The binary learning effect is not only in the content, but also in the work process itself, which contributes to the development of work skills:

- with a personal computer, educational services and applications
- skills in working with tools and technologies that support individual and group learning activities;
- communication skills;
- skills of working with cloud and fog technologies;
- skills in self-education with digital educational tools and means;
- skills in the field of the educational process organization using digital educational tools and means, etc.

4. Summary

Thus, it can be noted that the results obtained testify to the readiness of teachers to use digital tools, technologies and methods of network integration in their professional activities, but it should be noted that there is no external motivation for the teacher; the need to upgrade software and technical set of their computer, interactive equipment; insufficient development of the support system and elimination of personal professional deficiencies of the teacher on current problems of using digital tools.

Acknowledgements

References

Ageev, A. I., Averyanov, M. A., Yevtushenko, S. N. & Kochetova, E. Yu. (2019). *Digital society: architecture, principles, vision* [Electronic resource]. URL http://www.inesnet.ru/wp-content/mag_archive/2017_01/es2017-01-114-126_Ageev _Averyanov_Yevtushenko_Kochetova.pdf (accessed date 24.04/2019)

Antopol'skii, A. B. (2015). Algorithms and Methods that Measure the Level of Development of Information Resources at Scientific and Educational Organizations. *Scientific and Technical Information Processing, 42*(1), 14-24.

Benedek, A. (2015). Molnár Gy. E-teaching and Digitalization at BME. New Technologies and Innovation in Education for Global Business: 19th International Conference on Engineering Education - proceedings. Zagreb, (University of Zagreb, Faculty of Economics & Business) *Zagreb: Zagreb School of Economics and Management*, 349-356.

Çelik-Şahin, Ç. & Schmidt, O. (2014). Teaching English Activities for the Gifted and Talented Students. *Journal for the Education of Gifted Young Scientists, 2*(1), 53-67.

Draft of Didactic Concept of Digital Vocational Education and Training. M.: Publishing House "Pero", 2019. 72.

Juszczyk-Rygałło, J. (2017). Teacher's competences at the age of digitalization of education. *Acta humanica (University of Zilina), 1*, 8-17.

Khorrami, F. T., Fallah, M. H. & Abadi, H. Z. M. (2015). The Effect of Unconscious Influences of Satellite Channels on Attitude of Using Satellite. *UCT Journal of Social Sciences and Humanities Research, 3*(1), 61-67.

Melo, R., Bezerra, M. C., Dantas, J., Matos, R., de Melo Filho, I. J., Oliveira, A. S. & Maciel, P. R. M. (2017, June). Sensitivity analysis techniques applied in cloud computing environments. *In 2017 12th Iberian Conference on Information Systems and Technologies (CISTI)*, 1-7. IEEE.

Matandare, M. A. (2018). Botswana Unemployment Rate Trends by Gender: Relative Analysis with Upper Middle Income Southern African Countries (2000-2016). *Dutch Journal of Finance and Management, 2*(2), 04.

Nugumanova, L. N. & Yakovenko, T. V. (2018). Mentoring as a way to overcome professional teacher deficits. *Professional education. M.: Stolitsa, 9*, 34-37.

Resolution of the Government of the Russian Federation of 15.04.2014 No. 313 On approval of the state program of the Russian Federation "Information society" [Electronic resource]. URL: http://docs.cntd.ru/document/499091768 (accessed date: 24.04.2019).

Robert, I. V. (2019). Didactics of the Information Technology Epoch. Professional Education. *Capital, 3*, 16-26.

Semin, A. N. & Kurdymov, A. V. (2018). International food security regulation. *Opción, 34*(85-2), 628-651.