Digital Technologies in the Educational Sphere

Azə Bisultanova*
Kadyrov Chechen State University, Sheripova Street, 32, 364024, Grozny, Russia

Abstract. It is a generally accepted fact that the digital transition in the humanities has already succeeded. The author emphasized the digital technologies impact on the research in humanities. The ways and methods of gaining knowledge have changed due to digital transformation at the current stage of society development. It is indisputable that obtaining and processing information have accelerated and it is definitely a positive factor. However, the issues of the digital humanitarianism essence remain debatable according to the author's research. There is still no accepted definition of the term. The author also emphasized that digital humanitarianism is also an object of research, not only a combination of digital tools for gaining knowledge. The number of software products serving the educational process will increase in the course of time. In addition to increasing in the number of digital products that will be used in humanities, the quality of the products will also improve and they will increasingly adapt to the needs of the educational process. The author pointed the need to introduce Digital Humanity courses for the compulsory study of humanitarian students since obtaining digital skills in humanities will contribute to the graduates’ career growth. Concluding the study, the author emphasized that despite the importance of information that will be obtained using modern digital tools, the value of humanitarian gained knowledge expertise will not decrease.

1 Introduction

At the current stage of society development, the driving force is in the development of new digital technologies that are beginning to occupy an increasingly important place in the human life process and society in general. Research processes are also influenced by digital technologies which allow to expand the boundaries of the research and to provide scientific communication irrespective of the researcher’s location. It is important to note in this context that the ways and methods of generating new knowledge have also changed due to the digital technology development. The digital revolution undeniably threatens traditional forms of knowledge acquisition. It can also be emphasized that digital technologies that were a tool for humanitarian research should be classified as research objects as well at the current stage. The object of the research in the sphere of digitalization is the prerequisites for the emergence of digital technologies, their objective need for implementation, the consequences of implementation and threats with risks that they can cause. Humanitarian research is being transformed with the help of the digital humanities. Firstly, it is accelerating and secondly, it is increasing in the scale. It should be noted that digital humanitarianism is an objective

*Corresponding author: zhanno44ka@mail.ru

© The Authors, published by EDP Sciences. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).
consequence of the progressing processes in the global world. The concept of "Digital Humanities" is debatable. There is no generally accepted definition of what Digital Humanities still represent, why they are so important and why much attention is paid to them not only in the academic community of the Russian Federation but researchers in the foreign countries also do not ignore this subject area.

2 Materials and Methods

A systematic approach, an evolutionary approach and approaches to the theory of sustainable development are used in the study process. Methods of analysis and synthesis, grouping and comparing are used as methodical apparatus of the research point). Try to ensure that lines are no thinner than 0.25 point.

3 Results and Discussion

There are 817 definitions of the term at the current stage of the society development and all of them are presented on the website whatisdigitalhumanities.com. The following definition is appropriate for this study - digital humanitarianism is an interdisciplinary science that brings researchers of the humanities and social sciences who are able to apply modern digital tools in their research together. The question is whether each scientist is also obliged to be a programmer to some extent nowadays. There is an obvious answer – it is not necessary but certainly is not excess. There are many cases when humanities scientists who had to deal with various digital tools in their research, were so drawn into the digital space that they even reached the level of a teacher in the corresponding digital technologies. Nowadays, digital humanitarianism is paid enough attention to and there are educational courses, laboratories and scientific and educational centres opened [1,2].

"Digital Humanities" can be seen in almost all leading universities in the USA, Canada, Australia, Holland, Great Britain, etc. There are a few examples. At the University of California in Los Angeles (UCLA - University of California, Los Angeles) there are six main centres and institutes of Digital Humanities support: Centre for Digital Humanities, Academic Technology Services, the Experimental Technologies Centre, the Institute for Digital Research and Education, UCLA Library (the UCLA Library) and the Ahmanson Laboratory for Digital Cultural Heritage [3]. The Russian Federation is also trying to follow global trends. For instance, the National Tomsk Research University is conducting research in the computer linguistics area, historical informatics, etc. It is also worth noting that the HSE Centre for Digital Humanities of the Higher School of Economics has been found and been successfully functioning for several years. Specialists in "Intelligent Systems in the Humanitarian Sphere" are taught at the Russian State Humanitarian University. Perm State University also has a Digital Humanities Centre.

The emergence of digital humanitarians can be regarded as a breakthrough in the area of ways and methods of studying information but not everything is easy in case of paying attention to the fact that researchers of natural and exact sciences who had to use digital tools for obtaining data earlier than humanitarians are already concluding that there is a crisis in the reproducibility of scientific results. It can be concluded that the excessive use of the latest technologies can lead to opposite results. It is important to note that despite the day by day increasing interest in digital humanitarianism, this science is still experimental and innovative in some sense. The gap between naturalists and humanitarians is beginning to narrow due to the digital humanitarianism, it contributes to increased communication between scientists in various fields of activity.
According to M. Taller's classification in his lecture "Discussions around Digital Humanities", digital humanitarianism is divided into 4 investigation areas (Figure 1):

1. An area that focuses on text analysis.
   At least three investigation areas can be distinguished here. Firstly, it is the computational linguistics. Computer linguists attempt to model the formal rules which the language lives by, and live speech is built by, or analyse linguistic phenomena in corpus linguistics. Secondly, literary criticism uses various digital means of analysis: from trivial indexing to build a dictionary of a single author to more ambitious ones, e.g., solving the problem of formalized determination of the author's style or a certain "school" style. Thirdly, this direction of "editorial philology" is a sphere close to textology which is focused on the reconstruction of "correct" or "original" texts that could be lost during their long existence, the identification of various layers in the original text and the presentation of results. Such studies are held on ancient texts, e.g., chronicles, works of ancient authors and religious texts.

2. The second area focuses on the analysis of information fragments extracted from various sources: texts, descriptions of images, social networks, etc.
   It is worth paying attention to the fact that the authors use mathematical modelling as well as big data analysis. The essence of this method is that a fragment of information is obtained from the texts and then a unified whole is recreated from these fragments using mathematical modelling and big data analysis.

3. Also, there is a large area of Digital Humanities that helps to work with non-text resources.
   The digitization of big data and further work with them are used in this case. Digitization is especially used in archaeology and art history although in other humanities it is also of great importance. Moreover, in this context visualization, three-dimensional modelling as well as other ways to increase the visibility of the presented data can be focused on.
4. Finally, M. Taller identifies an area that he calls Humanities Computer Science (Russian analogue - computer science in the humanities) [4].

5. A feature of this industry is that it can be classified in turn in two directions: formalized and epistemological. The essence of the first direction is that humanitarian and applied research areas have some key characteristics that fundamentally distinguish them from each other. Therefore, it is necessary to use digital technologies that will satisfy both the goals of humanitarian and applied research since digital humanitarianism is distinguished by interdisciplinary. Therefore, the epistemological approach answers the question of how modern digital humanitarianism differs from traditional, what new things have been digitalized in traditional humanitarianism and how to change the ways and methods of finding and processing information.

Many domestic researchers also analyze changes in the ways and methods of obtaining information connecting with the digital boom. U.S. Zakharova, G.V. Mozhaeva, P.N. Mozhaeva, Z.A. Rozhneva, V.A. Serbin, A.A. Khaminova in the monograph "Digital humanities: humanities in the digital age" provide organizational forms and infrastructures in the area of digital humanities in leading world centers, analyze key areas in the humanitarian scientific research development and digital humanities development in Russia and the world [5]. Digital humanitarianism as a new science is presented by Y. D. Prudenko, D. Y. Kuzmina [6], I. N. Rudov [7]. The sharp leap that occurred in the humanities digitalization during the coronavirus infection is especially worth noting. It can be also noted that digitalization served as the super tool that helped not to stop the process of gaining knowledge during the pandemic. The educational process was transferred into a remote format that would not be possible without the use of modern digital technologies. It has become possible due to digital technologies to give the educational process a more individual format which has always been quite difficult in the context of the traditional educational process [8].

It is also worth noting that the digital toolkit in the hands of humanitarian researchers is extensive. This toolkit is the analysis of big data and machine learning, however, data itself is not enough but human participation is also necessary in order to properly structure the found information as well as in other science. Not to mention the fact that sometimes the large amount of data is not so necessary, sometimes a pattern from the data of a small sample can be derived. At the same time, the Russian Federation follows the global trends which dictates the need to deepen into the sphere of digital humanities in the future. Considering the digital instruments introduction in all spheres of society's life, the introduction of digital instruments in all sectors of the Russian economy should not be ignored. The emphasis on the digital transformation of the economy at the state level came in Russia only after 2016. Russian President Vladimir Putin in his speech to the Federal Assembly on December 1 pointed the importance of creating a new digital economy to increase the efficiency of industries and improve the results of economic activity. The Digital Economy of the Russian Federation Program was approved in July in 2017. It defines the main directions for the development of digitalization of domestic industry and science. The need to accept this document was caused by the process of "digitalization" of the domestic economy as well as the desire to speed these processes and give them a certain order. The government must approve an operational plan once every three years with a constant update of the list of measures in the areas of its implementation for the effective implementation of the digital economy development program. The Russian Federation Digital Economy program focuses on the fact that digital data is a key factor in the digital economy production. These results make it possible to take more effective decisions in various industries and the national economy.

The "information space" was formed taking into account the needs of citizens and society in obtaining high-quality information and the information structure develops as Russian
information technologies develop. Furthermore, a new technological basis for the socio-economic sphere is being formed due to the digital economy.

Finally, a new technological basis for the socio-economic sphere is being formed - all due to the digital economy. The digital economy model presented in the program includes three closely interacting layers that are shown in the Figure 2.

Fig. 2. The digital economy model levels.

4 Conclusion

The digital transition in the humanities has already occurred. Therefore, it is only needed to accept this fact as accomplished and also to take the fact that digitalization will only penetrate deeper into humanitarian research in the future into account. It is quite easy to predict over time that there will appear an increasing number of software products that will be improved and modified helping all participants in the knowledge gaining process at all stages.

The approval of digital humanism as an interdisciplinary science that unites specialists in different areas of life in gaining the knowledge is also important to be noted [9]. Digital humanism is aimed primarily at cooperation and joint scientific activities of scientists from various fields. As the level of digitalization of humanitarian knowledge increases, so does the number of researchers who prefer to use modern methods of information processing in their searches. It is worth paying attention to the need of introducing Digital Humanity courses for compulsory study for humanitarian students in this context. It is indisputable that the useful skills gained while studying Digital Humanities courses will be taken into account in case of applying for a job and will also contribute to career growth. Doubtlessly, the information that will be obtained using modern digital tools is of great importance. But the value of humanitarian expertise of the knowledge gained will not decrease at the same time.

References

1. Digital Humanities in UCLA (2023), https://humtech.ucla.edu/about/.