

Problems of Digitalization of Higher Education in a Small Town

Elvir Munirovich AKHMETSHIN

Kazan Federal University, Elabuga Institute of KFU, Elabuga, Russian Federation, elvir@mail.ru

Vladimir Lvovich VASILEV

Kazan Federal University, Elabuga Institute of KFU, Elabuga, Russian Federation,
vasvladlev@mail.ru

Dilyara Akhnafovna MURTAZINA

Kazan National Research Technological University, Nizhnekamsk Institute of Chemical Technology,
Nizhnekamsk, Russian Federation, sha-dilyara@yandex.ru

Olga Sergeevna ALEYNIKOVA

Moscow State University of Technologies and Management, Volga Region Cossack Institute of
Management and Food Technologies, Dimitrovgrad, Russian Federation, aleynikova_olga@mail.ru

Tatiana Aleksandrovna AVERIANOVA

Nosov Magnitogorsk State Technical University, Magnitogorsk, Russian Federation,
ata1981@mail.ru

Iuliia Olegovna ALEKSIUK

Orenburg State University, Orenburg, Russian Federation, julietta@yandex.ru

Abstract

The research objective is to reveal the characteristics of the influence of digitalization of higher education on the quality of professional training in a small town and the demand for university graduates in the local labor market. The relevance of the research is due to the necessity and practical significance of developing local digital services for business development in a small town. Traditional scientific methods were employed in the research: analysis and synthesis, deduction and induction, logical and historical connection, identifying cause-effect relationships, laws of dialectics. Sociological and statistical research methods were also used: sampling, questioning, survey, analyzing the results, grouping, and graphical representation. The research shows the following results. Analyzing the processes of digitalizing higher education in a small town reveals the following problems: the decrease in the quality of professional training with the growth of distance learning and the use of electronic educational resources due to weak supervision and assessment by the teaching staff; the growing devaluing of professional knowledge in the digital economy with the emergence of new professions and tools for traditional business; the necessity of integrating higher education with business on a new digital basis which will promote commercialization of the research findings and innovative activities of universities. The research results are of practical significance due to the necessity of improving the process of digitalizing higher education for increasing the efficiency and quality of professional training in a small town.

Keywords: digitalization, higher education, digital technologies, online services, digital urban environment.

Introduction

The relevance of the research is due to the increase of the influence of digitalization processes on all spheres of social life. Digitalization process is an especially topical subject for a small town and it has a number of peculiarities. Digitalization involves all spheres of social life including the educational sector (Valenduc, and Vendramin, 2017), (Parviainen *et al.*, 2017), (Watkins *et al.*, 2018). It is essential to understand how to assess the development of urban digital environment and what role the

University of a small town plays in this process. In its turn it depends on the possibilities of online services, which allow to solve real problems of small towns and make corrections to the work of the educational sector. The present research is made on the basis of a small town Elabuga and Elabuga Institute of Kazan Federal University. The research objective is to assess the development trends of urban digital environment and recommend measures to improve digitalization processes taking into consideration the interests of town dwellers, businessmen and University representatives.

Problem Statement

Elabuga is a town (since 1780) in the Republic of Tatarstan (Russian Federation). Being the administrative center of Elabuzhsky District, Elabuga is incorporated within Elabuzhsky Municipal District as Elabuga Urban Settlement. It is included into Nizhnekamsky industrial complex. The population of the town is 70,000 people. It's one of the oldest settlements of the Republic of Tatarstan with a 1000-year history. The town celebrated its 1000th birthday in 2007. In accordance with Government order No. 1398-p of 29 July 2014 "On Approving the List of Monotowns" Elabuga is included into the list of single-industry municipalities (monotowns) with the risk of deterioration of the socio-economic situation. This situation is the reason for using all possible advanced tools for improving the economy of the town. Digitalization of the urban environment and development of online services will revive business and reduce transaction costs (Drucker, and Gumpert, 2012), (Guthrie, 2014), (Ekimova *et al.*, 2017). On the other hand, one of the major elements of the digitalization system of Elabuga is Elabuga Institute of KFU (Kazan (Volga region) Federal University) which trains specialists for the town and district labor market. This branch of Federal State Autonomous Educational Institution of Higher Education in the town of Elabuga was formed on the basis of State Educational Institution of Higher Professional Education Elabuga State Pedagogical University which was attached to "Kazan (Volga region) Federal University".

In 2018 4,336 full-time and part-time students get professional education in Elabuga Institute of Kazan Federal University. The structure of Elabuga Institute of KFU includes 7 faculties: Mathematics and Natural Sciences Faculty, Philology and History Faculty, Psychology and Pedagogy Faculty, Economics and Management Faculty, Foreign Languages Faculty, Engineering and Technology Faculty and Law Faculty. This educational institution trains specialists for all sectors of the economy of the town of Elabuga and residents of Special Economic Zone "Alabuga" and other cities and districts of the Republic of Tatarstan. Recent processes of digitalization have increased their influence on the activities of the educational institution. Digital technologies promote modernization of the educational process and interaction with external counterparties of Elabuga Institute of Kazan Federal University (Galimov *et al.*, 2013).

There is an urgent need to research the trends of development of digitalization processes in terms of professional training of specialists for Elabuga labor market and influence of new digital online services on the development of business in the town and increasing the educational potential of town dwellers.

Literature Review

The problem of interaction of the labor market and educational services with the development of digital technology is given a detailed study in scientific literature.

N. Azmuk in his research paper discloses the main trends in the transformation of the labor market and higher education: development of digital forms of employment and digital education; development of digital infrastructure; strengthening of business and university integration; increasing innovative objects of both markets (Azmuk, 2015). Digital technology is considered to be the tool for decreasing the imbalance between the labor market and education. But the mentioned article does not reveal the specific nature of interaction between digitalization of higher education and a small town.

Digitalization of education allows the academic collaboration to reach a new level. The positive effect of digitalization is the formation of the common online resource of knowledge (Nankani *et al.*,

2009). Negative effects of digitalization may be connected with the difficulty of managing and financing the interaction of the research team on the digital basis. No measures of solving the problems are suggested in the abovementioned research.

Some researchers study the interaction of universities and industrial enterprises in the current circumstances as well as using digital technologies (Ling, and Yumashev, 2018). It is claimed that the key factor of the economic and social well-being of a region is the effective interaction of educational sector with businesses (Ovchinnikova *et al.*, 2018). Digitalization is considered an additional tool for general development of a region. But the paper does not give the results of studying the influence of digitalization on the integration of education with business.

Many scholars come to the conclusion that digital technologies can be an effective tool for creative improvement of the urban environment and the formation of a specific atmosphere of interaction between town dwellers (Suleymanova, 2009, 2014). A common online resource can be created for making design projects, outlining strategic development, attracting investment and area branding (Kirwan *et al.*, 2016). But the role of the educational sector is not identified in mentioned paper.

Studying the influence of digitalization in an educational institution some scholars mention the risk of ill health of students (Kolmakov, and Polyakova, 2017). New digital technologies incorporating computers, laptops, tablets, smartphones and interactive whiteboards lead to the decrease in physical activity and increase the risk of musculoskeletal disorders. Digital technologies in an educational institution must be in accordance with determined hygienic and safety regulations (Stepanova *et al.*, 2015). But the cited article does not give the evaluation of the methodological specificity of digital technologies in professional training according to the labor market demands.

The literature review proves the relevance of the research of digitalization processes and digital economy; but there is no thorough investigation of the digitalization of higher education in a small town.

Methodology

Traditional scientific methods were employed in the research: analysis and synthesis, deduction and induction, logical and historical connection, identifying cause-effect relationships, laws of dialectics. Sociological and statistical research methods were also used: sampling, questioning, survey, analyzing the results, grouping, and graphical representation.

A questionnaire was designed for the survey. The survey involved 700 town dwellers (Elabuga, Republic of Tatarstan), who participate in creating online-services, get higher education (retraining or refresher training) and use the possibilities of digitalization. The age of respondents ranged from 18 to 65. Male and female respondents were represented in equal proportion. The survey was conducted by the research team of six members. The questionnaire was anonymous and the consent for data processing was confirmed in writing by all respondents. The following questions were included in the questionnaire:

1. Do you have constant free access to the Internet? (yes/no)
2. Assess you level of using digital technologies in your everyday life on a 10-point scale (10 points – use frequently, 0 points – never use)
3. How often do you use the Internet and online services to pay for goods (services)? (10 points – use frequently, 0 points – never use)
4. Do you use the Internet for making medical appointments and searching information (online educational services)? (yes/no)
5. Do you use the Internet to pay for housing and public utilities? (yes/no)

Microsoft Excel spreadsheet was used for systematizing and analyzing the questionnaire results. The sampling error was of an acceptable value.

Results

The first objective of the current research was to study how the local digital services are involved in the activities of Elabuga Institute of KFU and everyday life of Elabuga dwellers. Local digital services include the services available in the studied area: home delivery, ordering take-away, online shopping in local shops, ordering taxi, distance learning, etc. (Pilik *et al.*, 2017). The research results show that more than 50% of Elabuga dwellers and students of Elabuga Institute of KFU have access to all possible local digital services, 20% never use such services, 30% seldom use local digital services.

The next objective was to study how the Internet is used by Elabuga dwellers and students of Elabuga Institute of Kazan Federal University. The obtained data show that in the town and in the University the Internet is used mainly for communicating. 31% of respondents use the Internet for searching information; while in Russia this indicator reaches 52% on average.

The third objective was to study the online payments for housing and public utilities, medical services and learning. The data show that the average of using local online services in Elabuga is lower than in Russia on the federal level. Only 63% of town dwellers use the Internet for getting medical services and 23% of respondents use online payment for housing and public utilities. In Russia these indicators reach 85% and 66% correspondingly. These data convincingly demonstrate the low level of the digitalization processes in Elabuga and Elabuga Institute of KFU.

Discussion

A number of measures are suggested for developing digitalization processes and increasing their positive effects in Elabuga. The first is to provide training in Elabuga Institute of KFU for town dwellers to improve their computer literacy and increase online activities. The undergraduate program “Digital Economy” is to be licensed and introduced at Economics and Management Faculty of Elabuga Institute of KFU. Specialized departments should be set up in leading enterprises of Special Economic Zone “Alabuga” for online learning and on-the-job training of the staff.

Taking the suggested measures is supported by a number of authors. Yang claims the necessity of improving the computer literacy for increasing the use of digital services including the electronic government (Yang, 2017). Online social networks can be used for promoting electronic government services; which is a convenient way of uniting the population to solve current problems at the local administration level.

Schrack in his research proves the necessity of setting up specialized departments in enterprises (Schrack, 2018). Nowadays digital technologies begin to be used in the value chain. If earlier the digitalization process involved only trade, public relations, advertising, now it is introduced in enterprises as well. For this reason universities and enterprises have to work in collaboration and use digital technologies.

Kahlon and Tse mention the fact that digitalization causes new requirements in traditional activities both in business and education (Kahlon, and Tse, 2009). They point out that in the Digital Revolution libraries are becoming global digital resources and have to make a radical change in their mission, strategy and current objectives; because competitiveness of science, education and the economy as a whole is largely dependent on modern digital libraries (Korableva *et al.*, 2018).

We agree with the opinion of Baumol and Bockshecker that the significant controversy of digitalization is revealed in social interaction of different age groups (Baumol, and Bockshecker, 2017). Their paper proves the necessity of introducing certain methodological approaches into the educational process for a more effective interaction of teachers and students on the basis of new digital technologies. Machekhina mentions the problem of discrepancy between the speed of digitalization of educational resources and the speed of the digitalization of the educational process itself (Machekhina, 2017). It shows the relevance of the measures suggested by the authors of present

paper. Due to the bachelor study program “Digital Economy”, introduced at Elabuga Institute of KFU, the demands of the labor market, educational process and the urban environment will comply with the high level of development of local digital services.

The literature review on the problems of digitalization proves the relevance and reliability of the research conducted in the small town of Elabuga and Elabuga Institute of KFU.

Conclusion

The results of the survey conducted in Elabuga and Elabuga Institute of KFU reveal the following problems of digitalization of the educational process and current management objectives of dwellers and businessmen of the small town:

1. A large number of town dwellers (20%) having no access to online services alongside with the growing number of town dwellers (50%) using all available online resources in their everyday life.
2. Relatively low level of Internet using for online shopping (31%) compared to the average in the Russian Federation (52%).
3. The lower level of using online medical services and online learning (63%) and online payment for housing and public utilities (23%) compared to the average in the Russian Federation (85% and 66% correspondingly).

A significant trend of digitalizing the activities of Elabuga Institute of KFU is the decrease in the quality of professional training with the growth of distance learning and the use of electronic educational resources due to weak supervision and assessment by the teaching staff.

The most significant trend of the effect of digitalization on the business environment and the labor market in Elabuga is the growing devaluing of professional knowledge in the digital economy with the emergence of new professions and tools for traditional business.

The measures suggested for overcoming negative trends of digitalization in Elabuga and Elabuga Institute of KFU include the following: providing training in Elabuga Institute of KFU for town dwellers to improve their computer literacy and increase online activities; introducing the undergraduate program “Digital Economy” at Economics and Management Faculty of Elabuga Institute of KFU; setting up specialized departments in leading enterprises of Special Economic Zone “Alabuga” for online learning and on-the-job training of the staff.

To increase the positive effects of digitalization in a small town it is necessary to ensure the process of integrating higher education with business on a new digital basis which will improve services, reduce transaction costs and promote the growth of commercialization of research findings and innovative activities of universities.

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