

# INTED **2022**

16th International  
Technology, Education and  
Development Conference

7-8 March, 2022

## CONFERENCE PROCEEDINGS



*Sharing the Passion for Learning*

# INTED **2022**

16th **International  
Technology, Education and  
Development Conference**

7-8 March, 2022

# **CONFERENCE PROCEEDINGS**

***Sharing the Passion for Learning***

**Published by**  
IATED Academy  
iated.org

**INTED2022 Proceedings**  
16th International Technology, Education and Development Conference  
March 7th-8th, 2022

**Edited by**  
L. Gómez Chova, A. López Martínez, I. Candel Torres  
IATED Academy

ISBN: 978-84-09-37758-9  
ISSN: 2340-1079  
DL: V-224-2022

Book cover designed by  
J.L. Bernat

All rights reserved. Copyright © 2022, IATED Academy

The papers published in these proceedings reflect the views only of the authors. The publisher cannot be held responsible for the validity or use of the information therein contained.

## INTED2022 COMMITTEE AND ADVISORY BOARD

<i>Adam Smith</i>	JAPAN	<i>Lorena López</i>	SPAIN
<i>Agustín López</i>	SPAIN	<i>Loreta Juškaite</i>	LATVIA
<i>Alan Carlson</i>	SWEDEN	<i>Luis Gómez Chova</i>	SPAIN
<i>Alessia Bevilacqua</i>	ITALY	<i>Luís Torres Moreira</i>	PORTUGAL
<i>Allison Spring</i>	UNITED STATES	<i>Lukasz Wiechetek</i>	POLAND
<i>Amparo Girós</i>	SPAIN	<i>M<sup>a</sup> Jesús Suesta</i>	SPAIN
<i>Ana Dias Daniel</i>	PORTUGAL	<i>Marcelo Gaspar</i>	PORTUGAL
<i>Ana Paula Lopes</i>	PORTUGAL	<i>Mária Bakó</i>	HUNGARY
<i>Ana Tomás</i>	SPAIN	<i>Maria Cutajar</i>	MALTA
<i>Anna Dillon</i>	UNITED ARAB EMIRATES	<i>Maria Porcel</i>	SPAIN
<i>Antonio Coelho</i>	PORTUGAL	<i>Marian Zajko</i>	SLOVAKIA
<i>Antonio García</i>	SPAIN	<i>Martina Koenig</i>	AUSTRIA
<i>Asako Ohno</i>	JAPAN	<i>Mary Dempsey</i>	IRELAND
<i>Chelo González</i>	SPAIN	<i>Matteo Bozzi</i>	ITALY
<i>David Martí</i>	SPAIN	<i>Michael Collins</i>	IRELAND
<i>Denise Prescott</i>	UNITED KINGDOM	<i>Michela Tramonti</i>	ITALY
<i>Dina Nader</i>	UNITED ARAB EMIRATES	<i>Mohd Hassan Abdullah</i>	MALAYSIA
<i>Elena Baguzina</i>	RUSSIAN FEDERATION	<i>Monika Banaś</i>	POLAND
<i>Elena Grunt</i>	RUSSIAN FEDERATION	<i>Norma Barrachina</i>	SPAIN
<i>Emanuel Tundrea</i>	ROMANIA	<i>Peter Haber</i>	AUSTRIA
<i>Eva Ponick</i>	GERMANY	<i>Petr Beremlijski</i>	CZECH REPUBLIC
<i>Farhad Eftekhari</i>	FINLAND	<i>Petra Vondráková</i>	CZECH REPUBLIC
<i>Filomena Soares</i>	PORTUGAL	<i>Remigijus Bubnys</i>	LITHUANIA
<i>Guilherme Penello Temporão</i>	BRAZIL	<i>Rob Branch</i>	UNITED STATES
<i>Ignacio Ballester</i>	SPAIN	<i>Saime Matsu</i>	UNITED STATES
<i>Ignacio Candel</i>	SPAIN	<i>Sarah Hord</i>	UNITED STATES
<i>Ilias Batzogiannis</i>	GREECE	<i>Sarah Lukas</i>	GERMANY
<i>Iván Martínez</i>	SPAIN	<i>Sergio Pérez</i>	SPAIN
<i>Javier Domenech</i>	SPAIN	<i>Stefania Cassar</i>	UNITED KINGDOM
<i>Javier Martí</i>	SPAIN	<i>Susanna Bertelli</i>	ITALY
<i>Joanna Lees</i>	FRANCE	<i>Tânia Carraquico</i>	PORTUGAL
<i>John Gordon</i>	UNITED KINGDOM	<i>Tessai Hayama</i>	JAPAN
<i>Jose F. Cabeza</i>	SPAIN	<i>Tracy Hoot</i>	CANADA
<i>Jose Luis Bernat</i>	SPAIN	<i>Ursula Jahn</i>	CANADA
<i>Kadiri Abdul-Karim</i>	GHANA	<i>Victor Fester</i>	NEW ZEALAND
<i>Kalaimagal Ramakrishnan</i>	MALAYSIA	<i>Wan Sin Lim</i>	UNITED STATES
<i>Karl Jordell</i>	NORWAY	<i>Wendy Gorton</i>	UNITED STATES
<i>Kimberly Hoggatt Krumwiede</i>	UNITED STATES	<i>Xavier Lefranc</i>	FRANCE
<i>Küllü Kori</i>	ESTONIA	<i>Yulia Piller</i>	UNITED STATES

## **CONFERENCE TRACKS & SESSIONS**

### **DIGITAL & DISTANCE LEARNING**

Distance Education in COVID-19 Times  
MOOCs & Open Educational Resources  
Blended & Mobile Learning  
e-Learning Experiences  
Learning Management Systems & Virtual Learning Environments  
Students & Teachers Wellbeing in COVID-19 Times

### **DIGITAL TRANSFORMATION OF EDUCATION**

Data Science & AI in Education  
Learning Analytics  
Digital Technologies and Resources for Learning under Lockdown  
21st Century Skills  
Educational Programming & Robotics  
Digital Transformation

### **INNOVATIVE EDUCATIONAL TECHNOLOGIES**

Virtual & Augmented Reality  
Videos and Social Media in Education  
Technology Enhanced Learning  
Chatbots & Robots  
Digitalization and Challenges of Libraries

### **INCLUSION & MULTICULTURALITY**

Special Educational Needs  
Inclusive Education  
Multicultural Education  
Diversity Issues

### **ACTIVE & STUDENT-CENTERED LEARNING**

Gamification & Game-based Learning  
Problem & Project-Based Learning  
Pedagogical Innovations  
Soft Skills Development

### **ASSESSMENT, MENTORING & STUDENT SUPPORT**

Assessment & Evaluation  
Rethinking Assessment in COVID-19 Times  
Mentoring & Tutoring  
Student Support & Motivation

## **EDUCATIONAL STAGES & LIFE-LONG LEARNING**

From Pre-school to Secondary Education  
Vocational Training  
Higher Education & Labour Market Transition  
Transition to the Labor Market  
Developing Entrepreneurship in Education  
Life-long & Workplace Learning

## **QUALITY & IMPACT OF EDUCATION**

Quality in Education  
CV Design and Post-pandemic Scenarios  
Sustainability & Environmental Awareness  
Social Impact of Education  
University-Industry Collaboration  
Globalisation & Internationalization

## **TEACHER TRAINING & ED. MANAGEMENT**

ICT & Digital Skills  
Teacher Training and Support  
Professional Development of Teachers  
Educational Management

## **STEM EDUCATION**

Mathematics & Statistics  
Engineering Education  
STEM Experiences  
Computer Science

## **DISCIPLINE-ORIENTED SESSIONS**

Architecture & Civil Engineering  
Health Sciences Education  
Business & Tourism Education  
Music Education  
Military Education and Training  
Documentary & Archival Research

## **LANGUAGE LEARNING AND TEACHING**

Foreign Languages  
New Technologies in Language Learning  
Language Learning & Translation Studies  
Intercultural & Sociocultural Competences

## ABOUT INTED2022 Proceedings

### HTML Interface: Navigating with the Web browser

This USB Flash drive includes all presented papers at INTED2022 conference. It has been formatted similarly to the conference Web site in order to keep a familiar environment and to provide access to the papers through your default Web browser (open the file named "INTED2022\_Proceedings.html").

An Author Index, a Session Index, and the Technical Program are included in HTML format to aid you in finding conference papers. Using these HTML files as a starting point, you can access other useful information related to the conference.

The links in the Session List jump to the corresponding location in the Technical Program. The links in the Technical Program and the Author Index open the selected paper in a new window. These links are located on the titles of the papers and the Technical Program or Author Index window remains open.

### Full Text Search: Searching INTED2022 index file of cataloged PDFs

If you have Adobe Acrobat Reader version 6 or later ([www.adobe.com](http://www.adobe.com)), you can perform a full-text search for terms found in INTED2022 proceedings papers.

*Important:* To search the PDF index, you must open Acrobat as a stand-alone application, not within your web browser, i.e. you should open directly the file "INTED2022\_FrontMatter.pdf" with your Adobe Acrobat or Acrobat Reader application.

This PDF file is attached to an Adobe PDF index that allows text search in all PDF papers by using the Acrobat search tool (not the same as the find tool). The full-text index is an alphabetized list of all the words used in the collection of conference papers. Searching an index is much faster than searching all the text in the documents.

*To search the INTED2022 Proceedings index:*

1. Open the Search PDF pane through the menu "Edit > Advanced Search" or click in the PDF bookmark titled "SEARCH PAPERS CONTENT".
2. The "INTED2022\_index.pdx" should be the currently selected index in the Search window (if the index is not listed, click Add, locate the index file .pdx, and then click Open).
3. Type the search text, click Search button, and then proceed with your query.

*For Acrobat 9 and later:*

1. In the "Edit" menu, choose "Search". You may receive a message from Acrobat asking if it is safe to load the Catalog Index. Click "Load".
2. A new window will appear with search options. Enter your search terms and proceed with your search as usual.

*For Acrobat 8:*

1. Open the Search window, type the words you want to find, and then click Use Advanced Search Options (near the bottom of the window).
2. For Look In, choose Select Index.
3. In the Index Selection dialog box, select an index, if the one you want to search is available, or click Add and then locate and select the index to be searched, and click Open. Repeat as needed until all the indexes you want to search are selected.
4. Click OK to close the Index Selection dialog box, and then choose Currently Selected Indexes on the Look In pop-up menu.
5. Proceed with your search as usual, selecting other options you want to apply, and click Search.

*For Acrobat 7 and earlier:*

1. In the "Edit" menu, choose "Full Text Search".
2. A new window will appear with search options. Enter your search terms and proceed with your search as usual.

# DIGITAL AND HUMANITARIAN TRENDS OF HIGHER EDUCATION IN RUSSIA

A. Gazizova<sup>1</sup>, M. Siraeva<sup>2</sup>, V. Panfilova<sup>3</sup>, E. Tarabaeva<sup>4</sup>

<sup>1</sup>*Kazan Law Institute (branch) of the All Russian State University of Justice  
(RUSSIAN FEDERATION)*

<sup>2</sup>*Udmurt State University (RUSSIAN FEDERATION)*

<sup>3</sup>*Kazan Federal University (RUSSIAN FEDERATION)*

<sup>4</sup>*Udmurt State University (RUSSIAN FEDERATION)*

## Abstract

The relevance of the article is caused by the current requirement of the accomplishments integration accumulated by liberal arts and sciences and mathematical sciences in light of new stage of higher education development which is expected to fall under the criteria of postindustrial society. The aim of the article is to colligate the basic parameters of higher education postindustrial model and to summarize its key trends. The paper puts a particular focus on the most distinctive educational trends as digitalization and humanitarization.

In the given study the higher education digital transformation is regarded through the perspective of humanitarian approach based on cultural, historical and social values of mankind as a whole.

Taking into account the current focus of modern university learners' requirements and demands the authors highlight challenges and options of Russia higher education digitalization as the staging ground to support university graduates and to promote competitive position of the state in general. The paper emphasizes the need for the elaborate and proper implementation of digital educational resources to extend and diversify humanistic, ethical and moral background of students. The necessity to develop instruments and techniques to assess students' achievements is also discussed here.

The article also introduces and interprets some statistical profile which reflects to what extent Russian universities are ready to implement appropriate educational activities in light of digital economic environment and to support humanitarian approach in higher education.

The issue of digital learning environment humanitarization is examined on the example of the Udmurt State University. The paper reveals humanistic potential of Electronic Information-Educational Environment applied in the Udmurt State University.

The authors come to the conclusion that the implementation of digital technologies as a subordinate methodological tool is expected to contribute to the strengthening and diversification of interdisciplinary links relevant to liberal arts and sciences and to mathematical sciences.

Keywords: higher education, educational trend, humanitarization of education, digitalization of education, postindustrial model of higher education.

## 1 INTRODUCTION

Current geopolitical environment and world order classified as VUCA world (Volatility, Uncertainty Complexity, Ambiguity) afford ground for describing XXI<sup>st</sup> century as an age of globalization, of new information and communications technologies and innovations, as an age of new way of thinking and complex connections between all members of social and cultural environment. Dynamism, lack of strict, common and unified reference points, interconnection and interdependence of current transformations intensify new approach of socially relevant institutions including modern education.

Relying on the recent developments of Russian and international scholars we will regard education as a "derivative" of culture, as a cultural projection which is expected to bring its epistemological features in line with the mainstream cultural model as the reference point of all available educational strategies.

Supporting this statement Russian pedagogical community tends to interpret the structure and evolution of educational strategies and models through the key vector of development (objectives, priorities and perspectives) and through transformation of key focuses. This evolution theory suggests that the actual



component of the previous culture transforms into the traditional component of the new cultural model, meanwhile a potential component of the previous culture is expected to have actual status [1].

Evolution of modern higher education is associated with postindustrial social model appeared to replace industrial society due to certain shifts in manufacturing supported by the introduction of automotive and information technologies. Diversification of automotive, communicative and information technologies led to the extension of service industries and to the growth of working-age population with higher education.

The term “postindustrial society” was introduced to the international scientific community in 1959 due to the research of an American sociologist, writer, editor, and professor of Harvard University Daniel Bell. According to D. Bell, a postindustrial society is one where knowledge has displaced property as the central preoccupation, and the prime source of power and social dynamism [2]. Following the evolutionary development of society international pedagogical community was expected to elaborate and promote relevant postindustrial educational strategies with the focus on students’ competencies to improve, diversify and expand their professional environment relying on innovative approaches [3].

If we take into account layered architecture of an individual psyche improvement introduced by Russian developmental psychologist and the founder of activity theory A.N. Leontiev than we may conclude that postindustrial educational model is focused on the third level of an individual psyche improvement which is well known as level of intelligence. This statement suggests that modern education demands creative teaching strategies, the ones that are expected to meet the needs and satisfy the demands of postindustrial culture as well as to expand competency portfolio of students giving primacy to lifelong self-development, self-education, intercultural tolerance and humanistic social values.

## 2 METHODOLOGY

The principle of isomorphism introduced by Russian scholar I.Ye. Vidt is associated with the initiative to ensure adjustment and alignment of the key educational model and characteristic features of postindustrial culture including:

- Relevance of flexible thinking and ability to carry out professional activities in the context of uncertainty and instability;
- Humanization of learning environment, acquiring personally relevant knowledge through mutual cognitive activities of teachers and learners;
- Reliance on polylogueness and polyculturalism while selecting and approving educational content and teaching strategies and methods;
- Polyvariety of information culture as a key vector which defines individual learning path of a student;
- Avoiding standardized methods of assessment of students performance;
- Avoiding unified educational model;
- Respect and satisfy the rights of educational services consumers to choose educational institution, educational programme and mode of study [1].

Creative potential of modern postindustrial educational model is supported by three-component structure of postindustrial society made up of information-oriented society, service economy and knowledge society.

In the context of our research we tend to share the approach introduced by Belarusian scholar O.V. Domakur who associates information society with technological foundation of postindustrial society. Therefore, we will use the term “knowledge society” in a wide context which is expected to take into account well-educated population united by their potential (intellectual, professional, personal) to develop, approve and implement new technologies, products and services. The shift of gravity centre towards service industry and recognition of information and knowledge as personally relevant capital gives significance to expertise allied to correlation relationships between level of education of a person and his / her standard of living and material welfare. From this perspective one may deduce that efficiency of knowledge application and knowledge management as well as the competence to take advantage of all available competitive privileges have become more relevant than knowledge itself [4].

Relying on current demands and needs of the international knowledge society and in order to strengthen social relations and to humanize outcomes of globalization UNESCO has put forward four strategic priorities of modern education such as:

- “Learning to co-live” which suggests awareness of interrelations and interconnections between all members of sociocultural environment in order to arrange and support relevant social and professional activities, to set common goals and to resolve possible conflicts;
- “Learning to cognize” in order to diversify cognitive sphere of learners, to update and expand their personal competency portfolio, to search, analyze and process an array of information and to deal with big data;
- “Learning to act” which means to be competent in certain real-life and career-related situations, to demonstrate and confirm personal virtues, authority and relevance in social and labour relations, to use available information and communications technologies and innovations in order to satisfy basic personal, social and professional needs and to improve living standards and to contribute to personal well-being and to well-being of the society;
- “Learning to be” in order to unlock personal and social potential focusing on humanistic values, following moral and ethical standards, perceiving personal cultural code as unique semiotic system, acknowledging uniqueness of other cultural codes [5].

Professor Patrick Griffin of the University of Melbourne as a part of the ATC21S project team emphasized one of the key trends of modern education. The ATC21S project is expected to find means of effecting change in the skills that are taught and assessed in high schools. The project was supported and funded by Cisco, Intel and Microsoft companies. Comparing industrial and postindustrial social structures Professor Griffin deduced that industrial educational model associated literacy competence with reading, writing and arithmetic skills. Meanwhile, postindustrial educational model has been shifted towards competencies associated with critical and analytical thinking, as well as with the ability to interact and communicate and with creative paradigm of social and professional activities. He emphasized that students now should be rewarded and educated not in terms of how much they know but in terms of how well they can think and accrue and critically evaluate information rather than just accumulate and memorize it. From this perspective in the XXI<sup>st</sup> century the emphasis is shifting to what the researcher calls “the four C’s”: critical thinking, communication, collaboration and creativity [6].

Taking into account current expansion of pedagogical thesaurus we tend to regard “educational trend” as an innovative and technological breakthrough, as a “trial balloon” which enables pedagogical community to define key directions and drivers that support the development of education as a socially relevant institution.

According to the objectives of this article let us focus on two educational trends such as digitalization and humanitarization since critical review of international literature as well as our personal teaching experience prove that the trends mentioned above reflect basic innovative and technological transformations and challenges of modern higher education.

Digitalization of education has been widely studied and discussed by international science since 1990s. Over this course of time representatives of different schools of thought elaborated different approaches to study digital educational resources.

Thus, N.A. Kasavina studied philosophical background of digital society and the influence of information technology on lives of individuals. The author points out that in terms of philosophy as a part of ontological knowledge, digitalization turns into distinctive lifestyle which brings new type of culture known as electronic culture. In its turn electronic culture leads to virtualization of economy, management, society and education [7].

If we focus on civilization approach than one may notice that digitalization is expected to shape a unique technology-related civilization with rapid changes in technologies and equipment driven by scientific knowledge [8].

The research of A. Targowski highlights that civilization issues should be included into higher education programmes and curricular in order to develop the sustainable civilization. Describing civilization approach to education he defines seven relevant dimensions, including:

- Culture dimension;
- Infrastructure dimension;
- Society dimension;
- Eco-system dimension;
- Mind dimension;
- Education content (human semantics);
- Human syntax [9].

B. Brenner and B. Hartle used a qualitative approach to identify how digitalization is framed in terms of ecological, economic and social sustainability in media discourse. Their analysis of the media data suggests that the context of the discussion prevails over the impact on and application of digital technologies in companies. Their research determines how different actors, including managers and policymakers act in response to the imperatives under discussion. Among their findings, perceptions of ecological and economic sustainability but not social sustainability seem to be affected by the extent of digitalization [10].

D. Tapscott described the most efficient and helpful educational strategies relying on peculiar feature of the new generation of learners. He was the first to introduce the term "NetGeneration" into scientific discourse. According to D. Tapscott the "Net Generation" includes those born between 1977 and 1996 years and involves ten main aspects that cause the divergence of the "Net Generation" from previous generations. The aspects are: 1) strong sense of independence and autonomy which makes "Net Geners" active information seekers instead of information recipients; 2) emotional and intellectual openness which reflects in online communication; 3) communication online allows for opportunities to get to know other people and move from the local to the global arena which makes the "Net Geners" more tolerant of people's differences; 4) since the Internet exposes the "Net Generation" to a much greater range of ideas and opinions it forces them to express their own standpoints; 5) they are innovative; 6) "Net Geners" are pre-mature. They show this by being more "techno-savvy" than the majority of adults; 7) they are investigators since they are often interested in how to work new technologies and how to create online content; 8) the notion of the Internet is that everything goes much faster than was the case previously. Immediacy is therefore very natural for "Net Geners"; 9) "Net Geners" are sensitive to corporate interests since they are critical thinkers and investigators; 10) they are used to authenticating everything they find on the Internet since the information could be manipulated, hence they are according to D. Tapscott 'Internet literate.' [11].

The research of N. Negroponte could be regarded as a critical review of digital education. Nicholas Negroponte almost 27 years ago outlined the history of digital technologies in his *Being Digital* book predicting that we will move toward an entirely digital society where youth demand instantaneous results and structures the world through the four forces of the digital age: decentralization, globalization, harmonization, and empowerment. In a word the new realm of human experience digital that as an ensemble of digital technologies now creates and recreates us, especially digital youth who seem more adept and more creative than others, in terms of digital resources binary numbers that in their infinite sequence and arrangement shaped all forms of communication, entertainment, socialization and education. The author examined the frontiers of digital technology and its impact on the future of human social life, work, entertainment, and commerce. N. Negroponte's primary aim here was to speculate about the "radically new culture" emerging at the intersection of "computer graphics, human communications, and interactive multimedia." [12].

A. Collins and R. Halverson justified the revision and adjustment of educational programmes in order to diversify and supplement curricular with digital information and communications technologies. In *Rethinking Education in the Age of Technology*, they argue that the knowledge revolution has transformed our jobs, our homes, our lives, and therefore must also transform our schools. Much like after the school-reform movement of the industrial revolution, our society is again poised at the edge of radical change. To keep pace with a globalized technological culture, we must rethink how we educate the next generation of learners. Thus, the authors offer a vision for the future of education that goes well beyond the walls of the classroom to include online social networks, distance learning with "anytime, anywhere" access, digital home schooling models, video-game learning environments and other available resources and techniques [13].

### 3 RESULTS

Classical science evaluates teachers as key subjects of university learning environment. However postindustrial age claims shifts towards satisfaction of students' needs and contribution to their personal, academic and professional success. Meanwhile this shift makes it relevant to restructure modern universities, to review current knowledge assessment system and the list of assessed competencies, to support educational programmes and curricula with project and end-to-end technologies and digital resources as well as to train teaching staff as tutors, scientific advisors and moderators of learning process.

The access of the national systems of education to basic resource of the global digital economy largely depends on the level and progress of local IT-infrastructure. Meanwhile, the benefits of the global digital economy are mainly determined by the level of expertise and digital literacy of experts and teaching staff.

The massive transition to distance learning provides additional incentives for the development of the Russian online education market.

Although Russia, according to the J'son & Partners Consulting research, is responsible for only about US\$162 million market share, national e-Learning market has a vast potential and continue to grow despite of the current economic crisis.

Online education industry, also known as e-Learning, is growing fast in Russia, and according to the experts forecast, is expected to grow by 25% a year. Recent data shows the world e-Learning market is worth around US\$107 billion and one of its major markets – Eastern Europe – is driven by Russia.

On May 18, 2020, it became known about the proposal of the Ministry of Communications to allocate up to 300 million roubles for the development of online educational services in Russia.

According to Kommersant, citing the agenda of the meeting of the government commission on digital development of the Ministry of Communications (held on May 15, 2020), subsidies for remote equipment services are proposed to be allocated from the funds of the federal project "Digital Technologies." Small enterprises are ready to provide up to 20 million roubles, leading companies – up to 300 million roubles, while at least 20% will have to be private co-financing.

E-Learning growing in Russia is strongly linked with the country catching up rapidly with other European nations over the past few years in terms of Internet penetration. In late 2015, according to a market research firm GfK poll, Internet penetration exceeded 70%, with 84 million users nationwide. The web penetration rate in Russia back in 2010 was as low as 37%.

Total Russian-speaking Internet audience nears 110 million users, taking into account an approximate 25 million Russian-speaking users in the former Soviet republics, Western Europe, Israel and North America, according to an EWDN estimate.

Recent statistical profile marks digital resources that give access to reference data and supplemental information, learning materials and tests as the most common and widely accepted digital tools. Leading national e-libraries are supported by publishing houses that are obliged to ensure access to electronic editions and to e-Learning courses. In 2002 Russian digital economy was supported by a number of learning portals as an access point where e-learning content and resources were stored centrally following branches of learning, subject areas and fields of study. The introduced portals were marked by a number of characteristics:

- User centric: learning portals should provide the best user experience possible and make it easy for learners to access e-Learning materials as and when they want to, instead of it being pushed to their inbox;
- Personalized: some learning portals offer the option of employee pre-assessments that allow you to understand their proficiency and learning style, and serve relevant content accordingly;
- Multi-format: learning portals usually allow for multiple different learning formats e.g. Written content, videos, quizzes, online games and interactive pdfs so learners can choose based on their preferred learning strategies;
- Multi-device: learning portals should be compatible with multiple devices, e.g. Desktop, tablet and mobile (Android and ios) enabling learners to choose how they consume the content;
- Interactive elements: some learning portals provide “gamification” options which allow employees to compete with their colleagues and receive recognition or awards for successful performance and achievements.

Supported by international and national programmes Russian digital economy is expanded due to development, practical evaluation and implementation of digital platforms which are supposed to provide access to open educational resources (OER) as well as to massive open online courses (MOOC).

According to official data in 2019 Russian online-education market volume (business-to-consumer (B2C)) reached 38,5 billion roubles. Relying on preliminary estimates Russian e-learning market is expected to grow up to 60 billion roubles by 2023.

Online university courses were forecast to have the highest revenue among other levels of digital education in Russia, at 15 billion Russian roubles in 2021.

Between 2019 and 2023, the Russian B2C e-learning market was forecast to grow by 56 percent. Since the early 2000s, the number of educational startups has significantly increased nationwide, and eLearning has become the second most popular sector for which startups offered products and technologies.

80% of Russian universities are provided with software applications to monitor and manipulate learning environment and to achieve their economic and administrative objectives. Some 70% of Russian universities are based on electronic document workflow [14].

According to expert estimates the proportion of online education in Russia makes up 1,1%. Meanwhile the dynamics of e-learning varies from 0,4% to 6,7%. Despite of the fact Russian legislation approved e-learning and distant learning technology in 2012, they have embraced just one third of Russian studentship with sizeable lead of blended learning. The share of e-learning and distant learning does not exceed 2% [15].

Statistical reports prove that 82% of respondents whose curriculum was totally based on e-Learning content are graduates or students of private universities or institutes. It suggests that current segment of Russian online-education market is dominated by private universities. Meanwhile, state-owned universities and colleges are more reliant on blended learning strategies and seem to use e-Learning and distant learning technology as a tool to provide information support or to arrange and monitor students' independent work.

Let us evaluate digital learning environment of the Udmurt State University (UdSU, Izhevsk city) as a classical regional academic institution.

Electronic Information-Educational Environment (EIEE) was introduced in the Udmurt State University in 2014 and is made up of four components:

- Administrative;
- Regulatory;
- Informative;
- Learning;
- Technological.

Let us briefly describe the components mentioned above.

Administrative component involves University administrative staff and its departments responsible for overall supervision of the University EIEE.

Regulatory component is associated with amendments and supplements to local normative acts and procedures that regulate the University EIEE as well as with its implementing rules relevant to the University curricular and to all principal educational programmes.

Informative component includes the following parameters:

- Electronic curricular and electronic educational programmes;
- Educational assessments and performance rating;
- Students' electronic portfolios;
- Electronic textbooks, workbooks, training aids, study guide and teaching materials and periodical literature.

Learning component deals with institutional and methodological environment which is relevant to provide the right conditions for qualified staff, to develop methodological recommendations and instructional guidelines embracing basic curricular activities and classroom management.

Technological component includes electronic information resources, e-Learning content, electronic educational resources, information and telecommunications technology available if and when requested.

Implementation of online education in UdSU brings up a concern about humanitarization of the University learning environment and urges to refocus learning experience around academic and professional mobility of students supported by such key competencies as critical thinking, creative thinking and flexible thinking. In its turn this demands to provide learning environment compatible with humanist values and ideals, as well as to integrate humanities knowledge, natural science and technical expertise as a body of knowledge about individuals, society and culture.

Digital humanism in education applies a critical pedagogical perspective in the context of the usage of digital technologies in education. It accentuates the necessity of a meaningful application of digital tools [16].

Digital content should be personalized to meet the needs of learners and the unique academic community you are involved in. Humanizing online learning means going beyond the relationship a student has solely with their device and engaging students as people with individual learning needs and challenges. Humanized online teaching encourages stronger relationships and active interaction among students and instructors to foster increased engagement with activities. Distance learning should support different learning preferences of students by providing different forms of activities and media as needed. It is also helpful to build a culture of care that supports the development of trust between students and instructors [17].

To humanize e-Learning content UdSU digital learning environment is provided with robust tools for gathering feedback from students, both in real time and for later consumption in order to drive meaningful instruction and student engagement.

Thus, modern university is expected to respect independence, self-sufficiency and personal identity of learners and could be described as an educational, research and cultural centre based on mutual support and responsibility. In all facets of education, technology can be used to support and augment a more humanized model for all associated with opportunities for dialogue and discourse and self-reflection.

## **4 CONCLUSIONS**

Summarizing the above, modern university curricular and educational programmes should be aligned with the current educational philosophy and should be balanced by advantages of digital economy and humanist values.

The experience of the Udmurt State University suggests that humanist potential of digital educational tools could be shaped by three parameters including:

- 1 Learning content based on polysubjective and learner-centered approach and dependent on individual background of students and their personal and professional needs and demands;
- 2 Individual learning path that emphasizes learner-specific goals and objectives, as well as preferences. It also refers to the path that a learner elects on their own, such as which learning activities and exercises they choose to participate in during learning experience;
- 3 Wide range of pedagogical technologies that enable to intensify learning process and to contribute to humanist personality orientation (project activities, online and offline teamwork mind mapping, gamification etc.).

As well as there are advantages, disadvantages should be also taken into account when we plan to work with digital or technology enhanced environments. It may seem as if there is overwhelming high-tech equipment that not everybody knows how to use (or has), but the truth is that most of the equipment is really very common in everyday life now. Some students and teachers may be discouraged by digital technologies. But it can be crucial when we deal with autonomous learners.

Still digital technologies could be regarded as a helpful tool to expand and diversify humanistic learning theories based on subject-to-subject relations.

Moreover, high level of digital competence of liberal arts students makes them more competitive and highly employable in the modern labour market, expand their opportunities to develop and modify individual career path. Digital competence as a part of liberal art students' competency portfolio enables them to search, analyze, select and properly use information represented in different forms and sources.

## REFERENCES

- [1] I.E. Vidt, *Education as a Phenomenon of Culture*. Tyumen: Typographer, 2006.
- [2] D. Bell, *The Coming of Post-Industrial Society: A Venture in Social Forecasting*. New York: Basic Books, 1976.
- [3] A. Toffler, *The Third Wave*. New York: Morrow, 1980.
- [4] O.V. Domakur, "Postindustrial Society Development Index." *Bulletin of BSU*, vol. 3, no. 2, pp. 53-56, 2011.
- [5] T.V. Muslumova, "Knowledge Society and the Challenges of the Development of Education". *Shadrinsk state pedagogical university Bulletin*, no. 3 (19), 2013.
- [6] P. Griffin, "The Comfort of Competence and the Uncertainty of Assessment." *Studies in Educational Evaluation*, vol. 33, 2007.
- [7] N.A. Kasavina, "Digitalization as a Subject of Interdisciplinary Research." *Epistemology and Philosophy of science*, Vol. 56, no. 4, 2019.
- [8] V.S. Stepin, "Scientific Knowledge and Values of Technology-related Civilization." *Philosophical Issues*, no. 10, 1989.
- [9] A. Targowski, "The Civilization Approach to Education in the XXI<sup>st</sup> century." *Comparative Civilization Review*, Vol. 65, no. 65, 2011.
- [10] B. Brenner, B. Hartle, "The perceived relationship between digitalization and ecological, economic and social sustainability." *Journal of Cleaner Production*, vol. 315, 2021.
- [11] D. Tapscott, *Growing up Digital: the Rise of the Net Generation*. New York: McGrawHill, 1998
- [12] N. Negroponte, *Being Digital*. New York: Vintage Books, 1995
- [13] A. Collins, R. Halverson, R., *Rethinking Education in the Age of Technology: The Digital Revolution and Schooling in America*. New York and London: Teachers College Press, 2018.
- [14] G.I. Abdrakhmanova, K.O. Vishnevsky, L.M Gokhberg *Digital Economy Indicators: 2019*. Statistical Digest. Moscow: Higher School of Economics, 2019.
- [15] N.V. Dneprovskaya, "Russian Higher Education Readiness Rating to Digital Economy," *Statistics and Economics*, vol. 15, no. 4, 2018.
- [16] S. Barnová, S. Hlásna-Krásna, *Digital Humanism in Education – Meaningful Use of Digital Technologies*. Conference: 2nd International EMI Entrepreneurship & Social Sciences Congress, 09-11 November 2018.
- [17] M. Pacansky-Brock, M. Smedshammer, K. Vincent-Layton, K. Humanizing Online Teaching to Equitize Higher Education. *Current Issues in Education*, no. 21(2), 2020.