

УДК 378.1:004.9(574)

**ЦИФРОВИЗАЦИЯ ВЫСШЕГО ОБРАЗОВАНИЯ В КАЗАХСТАНЕ:
ПРОБЛЕМЫ И ПУТИ ИХ РЕШЕНИЯ**

*Саренова А.С. Директор Института базового образования SatbayevUniversity Алматы,
Казахстан a.sarenova@satbayev.university*

*Абдыганпарова С.К. Профессор SatbayevUniversity Алматы, Казахстан
s.abdygapparova@satbayev.university*

С появлением и интенсивным развитием информационных и цифровых технологий возникает огромная потребность в их применении, в том числе в области образования. Целью данной статьи является анализ современных научных и прикладных тенденций в использовании инновационных цифровых технологий в преподавании и обучении. Задачами исследования послужили обмен опытом, обсуждение существующих проблем и поиск конструктивных решений для применения цифровых технологий в казахстанском образовании. Данное исследование основано на анализе докладов и дискуссий, проведенных в ходе работы 1-й Международной конференции «Преподавание иностранных языков в эпоху цифровизации», организованной Сәтбаев Университеті и Казахстанско-Немецким Университетом 24-25 октября 2019 года в городе Алматы, Казахстан.

Ключевые слова: цифровизация, цифровое разделение, цифровые инструменты, подводные камни цифровой трансформации, высшее образование Казахстана

DIGITALIZING HIGHER EDUCATION IN KAZAKHSTAN: CHALLENGES AND SOLUTIONS

A.Sarenova Dean of General Education Satbayev University Almaty, Kazakhstan
a.sarenova@satbayev.university

S.Abdygapparova Professor Satbayev University Almaty, Kazakhstan
s.abdygapparova@satbayev.university

With the advent and intensive development of information and digital technologies, there is a huge need for their application, including in the field of education. The purpose of this paper is to discuss current scientific and applied trends in the use of innovative digital technologies in teaching and learning. The objectives are to share experiences, to discuss challenges and to find constructive solutions for applying digital technologies in the Kazakhstani education. This research is based on the analysis of paper reports and discussions held during the 1st International Conference “Teaching Foreign Languages in the Era of Digitalization” organized by Satbayev University and Deutsch-Kasachische Universität on October 24-25, 2019 in Almaty, Kazakhstan.

Key words: digitalization, digital divide, digital tools, pitfalls of digital transformation, higher education of Kazakhstan

Aims and objectives

The digital revolution, often called the fourth industrial revolution, is considered a transition from the analog, mechanical and electronic technology to the digital one. Modern society has become “digitalized” and associated with mobile phones, gadgets, computers, Apps, social nets and Internet that mediate most of the people’s daily activities. The era of digitalization and modern technologies has brought significant changes to practically all spheres of human life. Digitalization is affecting the world per se and thus individual lives of people to an increasing extent. With the advent and intensive development of information and digital technologies, there is a huge need for their application and implementation in education as well. In other words, the increased digitalization in our lives especially in education is nothing new, but still, the necessity to understand how to operate it efficiently is crucial. The purpose of this paper is to discuss current scientific and applied trends in the use of innovative digital technologies in teaching and learning. The objectives are to share experiences, to discuss challenges and to find constructive solutions for applying digital technologies in the Kazakhstani education.

Research procedure

This research is based on the analysis of paper reports and discussions held during the 1st International Conference “Teaching Foreign Languages in the Era of Digitalization” organized by Satbayev University and Deutsch-Kasachische Universität on October 24-25, 2019 in Almaty, Kazakhstan (<https://tfl.satbayev.university/>). Throughout the two conference days, the participants discussed topical theoretical and practical matters of various aspects of digitalizing education. Representatives from Kyrgyzstan, Uzbekistan, Russia, Oman, UAE and the Netherlands along with the experts and practitioners from different parts of our country came to share their experience and expertise, to learn from each other and to exchange ideas on teaching and learning in the era of digitalization. Teachers from overall a dozen of leading Kazakhstani state and private universities such as Miras University, International Information Technology University, Satbayev University, “Bolashaq” Academy, Nazarbayev University, Narxoz, KIMEP, University of International Business, KAZGUU, AUEC, Karaganda State Technical University and Kazakh-German University put their thoughts out there for the audiences to consider. The conference presentations and discussions have served as a basis for making judgments regarding the state of things in digitalizing higher education in our country.

Methodology

Papers of 5 plenary and 22 section speakers have been analyzed. The two conference sections were focused on the following issues: “Benefits and implications of digitalizing foreign language education” and “Digital tools for enhancing foreign language learning and teaching.” In addition, eight master classes and workshops organized during the second day of the conference and followed by sharing experience of conference participants and guests on the related topics have been considered as the source of analysis.

To achieve the research purpose all the findings have been structured into five groups. These groups represent the five major challenges in digitalizing teaching and learning in a number of educational institutions of Kazakhstan. Based on the research data potential solutions have been suggested by the teaching community for dealing with the existing challenges.

Major results

1. The digital divide in the classroom: students vs. teachers

“Digital natives” are learners for future generations, i.e. a generation of young people who are born in the digital age. The net-generation students are smarter, quicker, and more tolerant of diversity than their predecessors are. The 21st century students are characterized by such qualities as mobility, sociability, digital literacy. Modern research demonstrates that there are obvious differences in the perception of teaching and learning processes by “digital natives” and “digital immigrants” or the last century generation teachers (there is no exact statistics on the average age of teachers in the Kazakhstani higher education, however, the average age of the teaching staff in our university is 41,1 as of 2019).

These two, now popular notions, were used for the first time in 2001 by Marc Prensky in his well-known essay “Digital Natives and Digital Immigrants.” Immigrants are those who “were not born into the digital world but have, at some later point in our lives, become fascinated by and adopted many or most aspects of the new technology” [1, 1-2]. The term was used to refer to teachers for whom the generation of students born in the last decades of the 20th century after the arrival and rapid dissemination of digital technology constituted a generation of “digital natives”. They have spent their lives surrounded by various “toys and tools of the digital age...” which “are integral parts of their lives” [1, 1]. As Prensky claimed, the use of these toys and tools may have changed their brains. And this temporal and passing phenomenon seems to be more than a generation gap. According to B. Cornu “The generations before digital natives cannot fully understand them or share their values, and face difficulties when communicating with them, collaborating with them, and of course educating them” [2, 4].

G. Bakirova, who presented a topic on boosting students' collaboration and motivation claims that since gadgets and Internet have become an inseparable part of their lives, today's generation, known as "Generation Z" prefers to learn in a fun-filled and non-stressful atmosphere using new technologies, especially web-based games or e-tools. Therefore, the environment of competition, challenge, collaboration and fun should be created for the learners by means of versatile digital tools. Although the Internet offers broad-ranging digital tools and games for educational purposes, they should be chosen to meet the requirements of the learning process and correspond to the levels and interests of students [3].

2. *Exploring a new role of instructors in teaching digital natives*

There exist diverse teacher perceptions and attitudes to the relevance of digital tools application on the one hand, and the pedagogical use of new digital technologies for teaching and learning on the other. Teachers' decision-making practices in applying technological tools in educational settings are also diverse. The most important aspect, and which requires research and investigation, is the digital fluency per se as well as the competences that are to be developed for teaching and learning in the context of digitalizing higher education [4].

Traditional teaching approaches and methods are no longer effective in dealing with "digital natives." This generation requires the application and implementation of completely different forms of work and types of assessment in the classroom. Instructors need to organize the learning process in such a way as to engage all students in the learning process. It is very important to consider their needs. To do this, teachers must understand what students expect from university. For example, modern students are not interested in lessons such as lectures. They want their opinions to be respected and accepted without judgment. They also prefer to work on projects in a group or in tandem with classmates [5].

Digital competence has become one of the key competences for lifelong learning. However, teachers' digital competence is still very often reduced to instrumental activities, such as using the computer or searching the Internet. Therefore, to educate current and future teachers to be digitally competent is a very urgent issue for higher teacher-training institutions. It is also very essential to determine the concept and structure of 'teachers' digital competence' in the sphere of education in order to provide the digitalized society with knowledgeable, highly qualified, digitally competent workforce [6].

3. *Digital tools for effective teaching and learning*

Digital technologies, implemented into the academic process, make it possible to individualize the training itself at various stages, including the development of new materials, their presentation, practice, production and assessment. Digital technologies provide opportunities for using a wide range of tools for blended learning, flipped classroom or distance education to overcome the limitations of in-class learning with the same academic curriculum and the same time to master it. Some of such practices have been presented by conference participants. Thus, A. Soltangazina and S. Velyamova describe their experience of using Moodle platform [7], while A. Kalizhanova and R. Ilisheva focus on introducing Trello Board into the educational ecosystem and the way it positively influences communication between students and teachers of their university [8].

G. Imankenova suggests using a variety of Microsoft tools and applications such as Minecraft Education Edition, Flipgrid (video-based social learning platform), OneNote or Sway to develop the 21st century Learning skills. Moreover, she asserts that they "motivate learners intrinsically and keep them curious about their surrounding environment" [9, 15].

One of the rapidly developing tools is learning through mobile environment. That is why using mobile Apps and Social Network Sites in the learning process is an active topic. For example, K. Narymbetova and Y. Babeshkosh are their experience on using Instagram to improve students' writing skills [10]. D. Akmurzina [11], A. Tonkikh [12] and Y. Zagorulina [13] have encouraged teachers to integrate WhatsApp, Skype, Telegram and Zoom into the educational processes by describing the effect of using Social Networking Sites in developing learners' languages skills. Y. Zhacheva presents Massively Multiplayer Online Role-Playing Games (MMORPGs) which form

video gaming spaces, provide access to contexts and types of interaction, and foster students' communicative competence [14]. Kahoot and Quizlet are popular among university teachers because they provide simple marking with immediate feedback to students, hide many pedagogical and assessment pitfalls for teachers, bring a full data set of students' results, and, indeed, boost engagement making the learning process considerably more interesting. Moreover, they increase the desire to learn by creating a game atmosphere, setting time limits and competitive spirit [11; 15]. Zooburst, Storybird, Utellstory, ACmi Storyboard Generator, StoryJumper are digital tools that allow students to study a subject matter independently, to prepare their digital stories, thus fostering learners' critical thinking and creative writing skills. As students have an opportunity to write, review, self-check and edit, it motivates and gives assurance to them. As a result, implementing these tools makes the learning process dynamic, more interactive and productive [16].

4. Pitfalls of digital transformation

Though there are a lot of internet materials and resources on any topic available for teachers (lesson plans, handouts, pictures, audios, films) that can make the teachers' life easier, their lessons more interesting and stimulating, and their students more motivated, incorporating internet materials into the classroom creates some problems for teachers. The major problems revealed by L. Smirnova are that teachers do not undergo through a thorough selection, adaptation, application, reflection and modification of these materials to meet the needs of a taught curriculum in general and any given class in particular. The approach should constantly change by taking into account not only what and how to teach, but also how to organize the management of the training process, including the allocation of the training time and assessment of the results of education [17].

5. Teaching methodology in the era of digitalization

The use of ICT in the educational system changes the methods and forms of education. Digitalization brings along decentralized, action- and result-oriented teaching and learning. To implement this kind of modern, digital learning, it is essential to elaborate scientifically grounded approaches to teaching and learning in a digitalized environment. This requires to do further research on theoretical foundations of applying ICTs as well as the analysis of currently existing practice-based methods of teaching and learning.

There already exist several innovative teaching approaches in higher education based on the application of digital technologies. General ones cover distance education [18] and blended learning. Specific ones include the flipped classroom model [19], student reports to their teachers via email or the Internet, online student-teacher consultations, chatting with peers by the network connection, online teaching/or learning portfolios, electronic files, e-templates, videos, infographics, images, photos, animations and other entries, bring your own device (BYOD) practices [12], TPACK model (Technology, Pedagogy, and Content Knowledge) [20] and others.

The most challenging ideas suggest perspectives of founding a 'Smart-University' and the overall application of M-Learning (learning, supported by mobile devices and particularly beneficial because of the unique features of mobile applications, such as interactivity, ubiquity and mobility) to substitute traditional university preparation [21].

Digitalizing education has become a driving force for changes in teaching and learning. The development of digital technologies in education opens up broad opportunities, paves the way for new learning experiences and provides innovative approaches to achieve the core goals of education by creating an environment of confidence, competition, challenge, collaboration, critical and imaginative thinking, and fun. Digital platforms have become the tools that allow a two-way interaction between a teacher and a student in the digital space: to share information, to take an active part in discussion, to track student academic progress. Checking online the knowledge on studied materials by providing simple marking hides many pedagogical and assessment pitfalls. It also provides such benefits as a full data set of results for teachers and immediate feedback to students, including the correct answers. The application of digital instruments can be maintained dynamically and can be used for various teaching and learning purposes. Modern tech-savvy students navigate naturally in this digital world, so teachers should take advantage of this and gradually develop this

savviness into autonomy in learning. Moreover, technology might also provide an authentic learning environment and improve the students' desire to study harder.

Conclusions

Teaching and learning in higher education are increasingly “going online.” While pedagogic implications of digitalizing education are not yet fully figured out, it is obvious that digital trends pose new challenges as not all of them can meet the requirements of the teaching and learning process and correspond to the levels and interests of students. Although digital learning generally seems to be effective, it is advisable to design, plan and implement it with care in accordance with curricula and learning outcomes requirements as well as the real needs of the learners.

It is necessary to understand that the transformation and digitalization of the educational system is a dynamic process, which is interrelated with the processes of digitalizing the society in general. Consequently, digitalization will bring new demands and challenges to higher education on multiple levels, thus creating opportunities for further progress and the development of innovations.

Literature

1. Prensky, M. Digital Natives and Digital Immigrants. – 2001. URL: <https://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf> (retrieved: 18.11.2019).
2. Cornu, B. Digital natives: how do they learn? How to teach them? Policy brief. UNESCO Institute for Information Technologies in Education. – 2011. <https://unesdoc.unesco.org/ark:/48223/pf0000216681> (retrieved: 18.11.2019).
3. Bakirova, G. Boosting students' collaboration and motivation through digital technologies in English language teaching. Abstracts. Teaching foreign languages in the era of digitalization. Almaty. – 2019. URL: <https://tfl.satbayev.university/wp-content/uploads/2019/10/TEZIS-SU-DKU-WEB.pdf> (retrieved: 18.11.2019). P. 14.
4. Nassyrova, R. Teacher digital fluency as a new competence for foreign language teaching. Abstracts. Teaching foreign languages... P. 23.
5. Abenova, A. Exploring A new role for teachers: teaching digital natives. Abstracts. Teaching foreign languages... P. 22.
6. Yelubay, Y. Digital competence in teacher education. Abstracts. Teaching foreign languages... P. 20.
7. Soltangazina, A., Velyamova, S. Integration of Moodle into Educational Process: Case Study of Institute of Language Training and Certification. Abstracts. Teaching foreign languages... P. 37.
8. Kalizhanova, A., Ilisheva, R. The experience of introducing digital technologies in the educational ecosystem of «Bolashaq» academy. Abstracts. Teaching foreign languages... P. 16.
9. Imankenova, G. The Problem-Based Learning method integrated with technology in EFL teaching. Abstracts. Teaching foreign languages... P. 15.
10. Narymbetova, K., Babeshko, Y. Creating digital learning opportunities in EFL classroom. Abstracts. Teaching foreign languages... P. 25.
11. Akmurzina, D. Continuous receptive EFL skills improvement via digital technologies. Abstracts. Teaching foreign languages... P. 32.
12. Tonkikh, A. Fostering learner Autonomy through BYOD practices. Abstracts. Teaching foreign languages... P. 46.
13. Zagorulina, Y. Zoom as a virtual classroom tool. Abstracts. Teaching foreign languages... P. 45.
14. Zhacheva, Y. Video games as an educational tool. Abstracts. Teaching foreign languages... P. 29.
15. Dimitriou, K. Using a mobile phone app to teach lecture skills and increase engagement. Abstracts. Teaching foreign languages... P. 30.

Известия КГТУ им. И.Раззакова 52/2019

16. Smirnova, Y., Zhekeyeva, K. Digital storytelling in the process of language learning in a technical university. Abstracts. Teaching foreign languages... P. 35.
17. Smirnova, L. Challenges of using internet materials in the classroom. Abstracts. Teaching foreign languages... P. 13.
18. Bainova, O. Flipped classroom as an innovative teaching approach in Kazakhstan higher education: A literature review. Abstracts. Teaching foreign languages... P. 19
19. Frencken, H., Ibrayeva, A., Dauletbayeva, D. Application of TPACK model in developing autonomous language learning. Abstracts. Teaching foreign languages... P. 34.
20. Alibekov, D. Main principles of distance learning in digitalization era. Abstracts. Teaching foreign languages... P. 26.
21. Serbin, V. Innovative teaching methods based on m-learning. Abstracts. Teaching foreign languages... P. 9.