

DIGITAL ENHANCEMENT OF STUDENT-CENTRED LEARNING IN UNIVERSITIES

D. Akhmed-Zaki, Y. Alimzhanov, N. Mussabayev

University of International Business (KAZAKHSTAN)

Abstract

Digital and ICT technologies penetrate all spheres of human life. ICT skills and digital literacy are becoming essential qualities of a modern person. In the digital age, universities should teach using modern approaches and integrating digital devices and services into the learning process. New technologies allow you to organize student-centred learning, when the student is an active participant in the academic process and is fully responsible for their own learning. The university should provide convenient conditions and environment for the organization of student-centred education; this can be attributed to the material and technical equipment of classes, library and digital services available to students and teachers.

The University of International Business (UIB) has implemented several services and approaches to provide student-centred learning, including

- flipped classroom with video lectures and tasks for preparing for classes and testing after classes,
- a mobile application for blended learning,
- cloud services and massive open online courses to improve digital literacy of students and teachers,
- a unified assessment system for more equitable and transparent student assessment
- and a learning analytics to track the student progress and the effectiveness of teachers.

All these services and innovations were implemented in one and a half years and allowed to significantly increase the motivation of students and attendance of classes.

Being a business university, UIB monitors the latest trends in the labor market and develops educational programs in accordance with the modern framework of qualifications and competencies demanded by employers. Important competences are the ability to program and process large amounts of data even for business specialties like digital marketing, financial analyst, convergent journalism, etc. Therefore, the university in recent years has been working on introducing digital technologies and attracting teachers from practice and industry.

Keywords: Flipped Classroom, ICT skills and Digital literacy, Learning Analytics, Mobile and Tablet Technologies, Cloud based technologies.

1 INTRODUCTION

Modern digital technologies provide new tools for the development of universities and other higher education institutions (HEIs) around the world. Digitalization of education provides opportunities for the effective organization of the academic process, as well as the exchange of accumulated experience and knowledge, which allows universities to learn more about their processes and make more informed decisions in their daily activities [1-3]. In recent years, we may often come across publications on topics like digital university, agile university, virtual university, smart university, university 4.0, and e-University (e.g., [4-6]), all of which were developed primarily as a result of digitalization of education and research.

Digitalization in HEIs is an issue that concerns many educational stakeholders. ICT skills are becoming increasingly relevant in every context, especially in the workplace, therefore one of the prime objectives for universities has become preparing future professionals to be able to deal with problems and search for solutions, including digital competence as a vital skill set [7], [8]. Different policies, initiatives and strategies are currently being proposed in Kazakhstan [9], addressing educational technology innovations in higher education [10]. Since 2018, the university adopted a new

development strategy, one of the key projects of which is the reflection of the state program “Digital Kazakhstan” [11] - “Digital University” [12].

Each university, regardless of the chosen strategy, must undergo a digital transformation. Such a transformation is not only and so much in the implementation of IT solutions, but in general is a significant cultural and organizational change at the university. The transition to a digital university involves the introduction of more flexible and seamless processes, changing corporate culture, process optimization.

The urgency of the need for transition is explained by several factors. Firstly, nowadays almost all students belong to the generation of digital natives [13]; they demonstrate a much greater tendency to use new technologies in their daily lives. Especially it concerns IT and Internet technologies, as well as their application not only in the professional sphere, but also for socialization and communication. Thus, the digitalization of the university will make it more adapted for the target audience. This will definitely lead to higher competitiveness of the university in the education market, creation of additional value and attracting students.

The second argument is the growing competition among universities, especially for top universities. In view of the globalization of the market, the struggle for the student will no longer occur within the framework of one country or a cluster of countries, but at the international level. Thus, the creation and preservation of the competitive advantage of the university will be determined by the timeliness of the introduction of new technologies and, as a result, readiness for fundamental shifts towards the educational system of the new generation.

The third argument is based on the need to digitize the internal processes of the university in order to increase the efficiency of interaction between departments at the level of the whole educational institution [14]. It is necessary to carry out all the innovative and cultural transformations that are required from the university in the transition to a new university model (Figure 1).

Despite the fact that the transition to the rules of the digital age can be an extremely difficult task, universities that are developing the right business strategy for introducing digital technologies can take advantage of a wide range of new ways to organize work with students, academic staff, administrative and management personnel and external stakeholders.

There is no universal solution to achieve specific results through the use of digital technology. But by listening to the opinion of the end users, you can get valuable information and use it as a basis for further action. The university, providing carte blanche to individual employees for the introduction of new methods of working with digital technologies, as well as providing support in solving these problems, can receive a powerful impetus to be transformed into an educational institution of a new format with optimized internal processes.

In the digital transformation of the universities, it is very important to first implement the top-down approaches, then the bottom-up to maximize the potential and use all the capabilities of the staff and resources of the university. The policy and strategy of such a transformation should be initiated by top management and supported at the level of strategic and academic units. The latter should take under their personal control the implementation of measures aimed at achieving the necessary results, and link their action plans with the overall development strategy of the university.

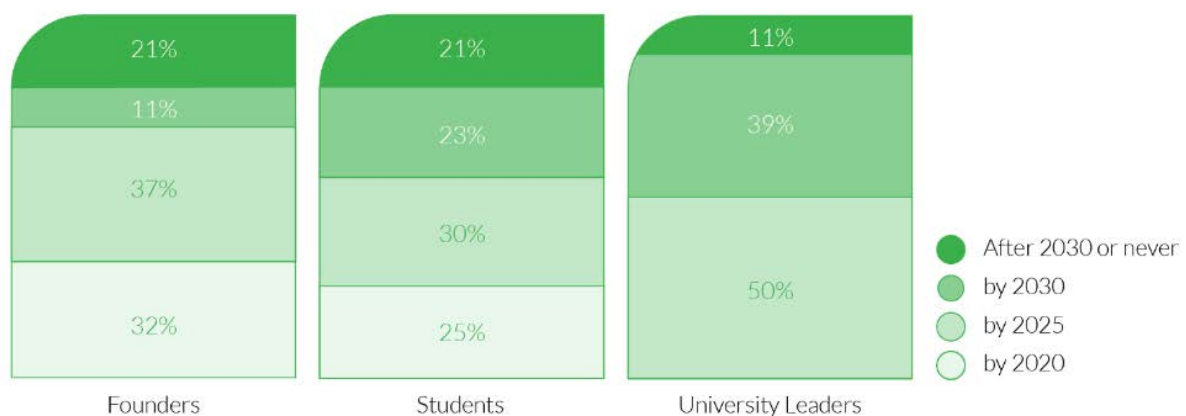


Figure 1. How imminent disruption of the traditional university model will be? [15]

2 METHODOLOGY

For this study a review of the existing digital services at the university was conducted and the impact of these services on the implementation of student-centered education was analyzed. In addition, interviews with staff and faculty of the university, as well as an analysis of the survey conducted by students regarding the innovations in the educational process, made it possible to assess how satisfied they are with the changes.

A review of the literature and publications on digital transformation of universities and the introduction of new technologies in the educational process, as well as the implementation of the student-centered approach at universities in Europe, has shaped the authors a more general vision of these problems and approaches to their solution. Analysis of data on the use of faculty and students of digital services and their traditional counterparts, helped to draw conclusions about the popularity of certain services among students, as well as the attitude of the teaching staff to these services.

3 RESULTS: DIGITAL TRANSFORMATION OF THE UNIVERSITY

3.1 University of International Business (UIB)

The University of International Business is one of the specialized humanitarian and economic institutions of higher education in Kazakhstan, carrying out the training of specialists and scientific personnel in the economic and financial area and the service and hospitality industry. UIB has been present on the educational services market for over 25 years and systematically implements the principles of the Bologna Declaration, works according to the global three-level higher education model "Bachelor-Master's-PhD", MBA, DBA and Foundation programs, as well as other departments and services of the scientific, educational and industrial areas.

Over the 25-year period of its development the University has gone through several stages of its development and today occupies a worthy place in internal market of higher education. The success of the University in academic, scientific and social activities, as well as its institutional effectiveness are closely connected with the strong practical orientation of education in accordance with the interests of the professional community. The administration of the University analyzes the main results of the previous stages of development and the internal and external challenges facing UIB, identifies general strategic development goals and specific areas and objectives for a long-term perspective.

Quality management strategy of UIB is based on principles such as meeting modern standards and requirements [16], continuously improving the quality of processes and educational services, through their digitalization and implementation of a data driven decision-making system. For this reason, all university processes are gradually being digitized through the introduction of new ICT systems and implementing student-centred learning approach. Student-centred learning is an approach to education, which aims at overcoming some of the problems inherent to more traditional forms of education by focusing on the learner and their needs, rather than being centred around the teacher's input. This approach has many implications for the design and flexibility of curriculum, course content, and interactivity of the learning process and is being increasingly used at universities across European higher education area [17].

Innovation in the learning process at the beginning always encounters resistance from teachers and students, since the university is a rather conservative system and reacts painfully to changes in its activities. But in recent years, in connection with the many reforms in the country's education system, students, teachers and other employees of universities have become accustomed to constantly happening innovations. The main condition for the adoption of innovations by participants in the educational process is to keep them informed and actively participate in the implementation process in order to take into account the opinion of end users regarding the usefulness and convenience of these services.

Study programs of the University are carried out by using modern and effective teaching methods, which are aimed at the active involvement of students in the study process and increasing students' independence and responsibility for the results of the educational process. Such methods include problem lectures, case-studies, problem solving activities, project-based learning that make student-centered study and help to realize student's potential, create creative learning and educational environment, and also contribute to the formation of future professional qualities.

3.2 Digital ecosystem of UIB

Digital ecosystem of UIB consist of education platform, mobile applications (LMS, English app, and CRM system), Cloud-based services (MS Office365, CRM system), antiplagiarism system, and other evolving services. As you can see in the Figure 2, the central place in the digital ecosystem of UIB hold education platform, which is a modified LMS Moodle in the core. All of these services are connected with the education platform and perform certain tasks. In addition, the university has facilities, which creates flexible digital collaboration spaces with access to video screens and power and provide good wireless connectivity on campus.

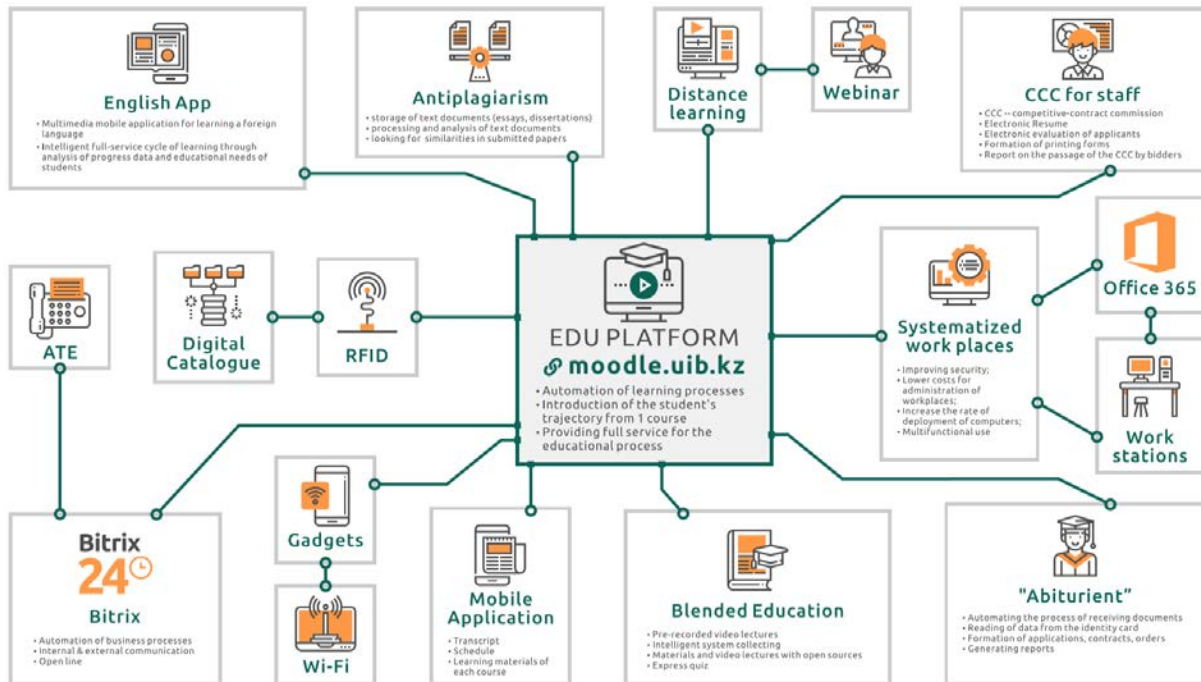


Figure 2. Map of digital apps and services in UIB.

3.2.1 Learning management platform and mobile application

Since 2013, an integrated management system for the automation of the academic process "Electronic Dean's Office" was developed based on the LMS Moodle. The main function of the "Electronic Dean's Office" is the storage and processing of information about the course of the educational process and its participants, as well as the automation of interaction between the three participants of the educational process: Administration - Teacher - Student.

A mobile application has been launched for students on Android and IOs operating systems since 2013. The "Electronic Dean's Office" system provides the current curriculum of the university on televisions located on all floors of the building. Since 2015, the university has been using the electronic document management system. Electronic document management allows you quickly resolve issues and have access to documents at anytime from anywhere in the world. Since 2017, customer relationship management (CRM) system that allows automating business processes and building communications both internal and external stakeholders has been launched.

3.2.2 Flipped classroom and cloud services in UIB

In 2018 "flipped classroom" approach was introduced to implement student-centred learning for 5 popular courses in UIB (Table 1). This approach combines traditional techniques and modern technologies in the educational process, which helps learners to control the time, place, pace and the way of study the course material. Therefore, the University Academic Council decided to introduce new categories of faculty, who gradually develop digital content (video lectures, handouts, instructions, tasks, etc.) for the most appropriate disciplines. The first experience showed the effectiveness of this approach for small study groups.

Table 1. Flipped classroom implemented courses and attributes.

	Videos	Quizzes	Students
Leadership	14	12	135
Microeconomics	18	14	98
Multilateral Diplomacy	15	14	28
Business practice	17	14	182
World Political Process	12	12	26

3.2.3 Antiplagiarism system of UIB

Checking the text for uniqueness is a new practice that has entered the life of universities. Today, every Kazakh educational institution checks students' work for originality. Abstract, course work or diploma, each of these scientific papers passes anti-plagiarism control and in case of detection of borrowings, is given to the student for revision. The universities of the Republic of Kazakhstan use several different programs to detect borrowing.

The University has the system for checking graduate theses and dissertations to identify the fact of plagiarism in the text. The verification procedure is automated. During the study, students send their work chapter by chapter.

The system capabilities:

- Supervisors see all their graduates
- Supervisors and graduates see a calendar schedule.
- Graduates upload each chapter of the thesis work to the portal
- Supervisors and graduates can upload files and exchange messages within each chapter.
- There is time limitation scheduled on the calendar. The system closes the access for uploading the chapter after the expiration of deadlines.

When all parts of the final work are uploaded, the system compiles them and starts checking. The system compares the student's work with the work of other graduates. For this purpose, a special information system was developed to find the any similarities and fuzzy duplicates. It has several stages of work:

- Preparation of documents;
- Work with text cleaning, formatting, removing words that do not carry meaning, etc.:
- Finding a collection of documents to compare.

Next, the student's work is checked for borrowing from the Internet sources. In the end, the work is additionally checked manually identify possible automatic errors and the result is recorded.

In 2016-2017 developing the first stage of the online dissertation submission system that will allow for unifying requirements, penalising intruders, introducing a uniform antiplagiarism system and storing student work for later analyses. UIB has a zero tolerance policy on academic plagiarism. Students are informed about the definition of plagiarism in introductory classes during their first year of studies, as well as the disciplinary consequences of violating academic ethics. Plagiarized works lead to a fail grade for the subject, with a requirement to undertake the course at a later date (usually during an additional, third, "summer" semester) with the corresponding financial penalty of paying for retaken credits. Written works are assessed by the teachers. Due to the tri-lingual education system, UIB is able to undertake electronic plagiarism testing of all submitted written works - there is a dedicated Kazakh-lingual anti-plagiarism system developed by IT staff, also the commercial English-lingual one are in testing stage. Moreover, UIB utilizes access to a multi-lingual system located in Russia (<https://www.etxt.rJ/antiplagiat/>) that evaluates Bachelor and Master dissertations. An independent anti-plagiarism system was developed in the academic year 2017-2018 with a focus on dissertation checking, but its operational effectiveness will depend on the quantity and speed of data provision (how many dissertations and how fast are provided to the engine to learn).

In the process of writing a thesis (project), incorrect borrowing of others' thoughts (plagiarism, compilability, paraphrasing) is strictly prohibited. Verification of the thesis (project) for plagiarism is carried out by the intra-university system "Antiplagiat." With the uniqueness of 75% and above, the student is allowed to defend a thesis, and the undergraduate student - 85% and above. The maximum number of inspections in the Antiplagiat system is 3 (three). In case of a failure from the final attempt, the student is not allowed to defend in the current academic year.

3.2.4 *UIB English app*

It is no secret that now parents and students themselves spend a lot of time and effort to learn a foreign language. The main problems are the lack of good methods and sufficient language environment for communication according to the level of language development. Based on the results of the analysis and research of new effective approaches to learning foreign languages on the basis of modern multimedia techniques, UIB digital technology laboratories have developed an interactive mobile application UIB English, which provides a unique opportunity for rapid immersion and involvement in the information environment of self-study of English. UIB developers were inspired by the idea of creating an appropriate language service within the framework of the complex project Digital University, which is undoubtedly a projection of the program "Digital Kazakhstan" within the University.

To begin with, the user is given the opportunity to pass a test to determine the level of language proficiency, the results of which the system is formed individual learning trajectory. During the autumn semester, the UIB conducted a comprehensive testing and adaptation of the application to the level of knowledge and individual opportunities of mastering the English language in the first-year students. In recent years, the number of students wishing to study in the English-language educational programs of the University has increased significantly among those entering the UIB.

At the same time, for those who do not know enough English UIB offers intensive study using effective techniques and subsequent passage of certain disciplines in English in senior courses. The main goal is that in modern conditions, each of our students has the opportunity to obtain the necessary advanced knowledge about the achievements of the English-speaking world without a language barrier. At the same time, students further successfully realize their chance to study at a foreign partner University in double degree programs within the framework of the University project "Study Abroad" without difficulties in adapting to the educational and language environment. The practice of our teachers has shown that the application UIB English forms an additional motivation for self-study and there is an increased interest on the part of students.

Developing the Digital University project, the University offers digital educational service not only to our students in the University, but also plans to implement digital learning services for everyone, especially students, on the most urgent educational needs: languages, introductory courses on future professions, academic writing for essays, interdisciplinary subjects and many others. The developed product UIB English is a multimedia educational and methodical complex successfully complementing the existing methods of teaching in the classroom based on the concept of Virtual classroom.

4 CONCLUSIONS

In the conditions of digital transformation and growing competition among universities in the country, the university has undergone major changes in one and a half year and introduced many innovations in its educational process and other tasks. The globalization of higher education and research is influenced by the development of new technologies and will have an effect in the system of higher education in the next five to ten years. To be ready for such challenges and to survive, universities need to constantly evolve, modernizing their infrastructure, processes, and continuing professional development of staff and faculty.

Being a business university, UIB monitors the latest trends in the labor market and develops educational programs in accordance with the modern framework of qualifications and competencies demanded by employers. Important competences are the ability to program and process large amounts of data even for business specialties like digital marketing, financial analyst, convergent journalism, etc. Therefore, the university in recent years has been working on introducing digital technologies and attracting teachers from practice and industry.

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