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Svetlana Asanova,
Incheon National University, SONAS College,
Incheon, South Korea
Svetlana M. Minasyan,
Ijevan Branch of Yerevan State University,
Yerevan, Armenia

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EDTECH-INNOVATIVE TECHNOLOGIES AND METHODS IN EDUCATION

EDTECH-ИННОВАЦИОННЫЕ ТЕХНОЛОГИИ И МЕТОДИКИ В СФЕРЕ ОБРАЗОВАНИЯ

Abstract:

In this article, the author considers breakthrough innovative technologies observed in the field of education, which seek to make learning more individualized through the introduction of gamification. That helps to increase the motivation of students to study subjects and broaden their horizons. As in most areas of our lives, education requires digital solutions that facilitate and empower teachers and students, making the lesson rich, interactive and more student-centered. Based on this, the creation of high-quality digital teaching aids and video tutorials that are offered on various platforms, are noted. It is also necessary to focus on the problem of personalization of learning in synthesis with the Flipped Learning Approach (a promising educational paradigm, best known as flipped education (Bergmann & Sams, 2012), as it is assumed that the effect of such a merger can bring positive results to expand innovative learning methods not only in the field of linguistics, but also in other areas of education.

Keywords: innovative technologies, flipped learning approach (flipped education), gamification, educational technologies, e-learning aids, gamified learning, additional reality (AD), virtual reality (VR)

Аннотация:

В своей статье автор рассматривает прорывные инновационные технологии, наблюдающиеся в сфере образования, которые стремятся сделать обучение более индивидуализированным, путем внедрения геймификации. Что помогает повысить мотивацию учащихся к изучаемым предметам и расширить их кругозор. Как и в

большинстве областей нашей жизни, в образовании требуются цифровые решения, облегчающие и расширяющие возможности учителей и учеников, делая урок насыщенным, интерактивным и более ориентированным на учащихся. Исходя из этого, отмечено создание качественных цифровых учебных пособий и видеоуроков, которые предлагаются на различных платформах. Также необходимо сосредоточить внимание на проблеме персонализации обучения в синтезе с Flipped Learning Approach (перспективной образовательной парадигмой, наиболее известной как перевернутое образование (Bergmann & Sams, 2012), поскольку предполагается, что эффект от такого слияния может принести хорошие результаты для расширения инновационных методов обучения не только в области языкознания, но и в других областях образования.

Ключевые слова: инновационные технологии, flipped learning approach (перевернутое образование), геймификация, образовательные технологии, электронные учебные пособия, геймифицированное обучение, дополненная реальность, виртуальная реальность

Introduction

Changing social norms are often reflected in education in one way or another. Since the quarantine, the whole world has been transferred to an online format. For more than two years, we have been creating electronic materials that help to conduct classes in a new mode—online. ***What influenced the methodology and goals of education?*** Education has become more personalized. The first year was adaptive, during which many electronic textbooks, video tutorials on the YouTube channel were created; some were unacceptable to use in professional education, especially in higher education. Constant searches have achieved good results. Currently on the Internet you can find a lot of interesting materials, professionally made, which allows using them in universities.

It should be noted that in recent years the concept of ***EdTech*** (***educational technology***) has taken on new forms. From interactive animation-based learning to apps where learners of all ages experience the benefits offered. However, another interesting transition that has brought positive changes to the EdTech industry is the introduction of ***gamification***. What does the term "***gamification***" mean? In his article, a colleague from Tomsk University, Abdykerov, gave a good definition of this concept. The term ***"gamification"*** means the introduction of a gaming component into non-gaming activities, using various expressive means. The use of games during the lesson has always been encouraged, enhancing motivation and interest in the subject ~~which~~ being studied to the educational process, as well as assisting with difficult aspects in many other subjects.

Experiment 1

Since gamification has become a buzzword in the industry, a study by ***Blue Weave Consulting*** has shown that the global market for gamification in education was previously valued at $697.26M in 2020 and is expected to grow to $4144.97M by 2020 — 2027 and beyond. Brands on the market are trying to look outside the box at how gamification can impact learning in the future. The pandemic catalyzed the basic concept of gamification as it stimulated all educational institutions to create a hybrid learning environment. The emerging need to increase motivation to learn has forced educators to pay special attention to game-based learning as an advanced approach to e-learning. The whole idea of gamification in ***EdTech*** is to present a video game layout or interface to encourage interactive learning.

Innovative learning

Gamification is the future of the education technology industry. The introduction of artificial intelligence, big data, cloud technologies, mobile learning, and virtual reality can enrich game-based learning. This encourages playful learning methods at schools to keep students interested in the learning process. Moreover, gamification increases the chances of the practical application of educational concepts, as it gives students the opportunity to use their imagination. Through more detailed familiarity with real-world applications in a particular subject, game-based methods will make it easier for teachers as well. One aspect to pay special attention to is how gamification can

help selling EdTech solutions by gaining insight into the effectiveness of applications from the results obtained by the player during the game. It also can be a simulator and help mastering certain skills during the game. It is no secret that pilots and drivers hone their driving skills on simulators, and similar simulation games can be created on other topics.

The term "gamification" is new not only in Russian but also in Western scholarship. This is evidenced by the fact that foreign scholars have different views on the issue of its origin. According to one version [14; 11], it was first introduced by the British programmer Nick Pelling in 2002 and 2003, and according to another — in 2008, when it entered the scholarly circulation [6] thanks to a small group of scholars [5; 9]; but most agree that the term became widespread after 2010. Since that time, the active development of the theory of gamification began in the West, and then — very quickly — in Russia. The first domestic works on the topic appeared already in 2012. For example, the article by S. A. Titov [13]).

The key to gamified learning in EdTech lies in the need to continue learning during a pandemic where innovation has come to the fore, especially when it comes to the education industry. From advanced learning modules that help students explore their interests in programming languages, to creating your own free model learning videos. There was a similar interest in innovation among parents, because they were more willing than ever to invest in technology that could improve their children's learning. These include using ***DIY STEM*** toy kits. This kit offers digital content to overcome the limitations and time limits of learning with standard methods. In addition, the introduction of AI-assisted personalization (internet innovation) has enabled innovations such as ***augmented reality (AR)*** and ***virtual reality (VR)***.

Such programs allow one to immerse the student in the language environment of the studied language. Given the opportunity to attend offline courses in the countries of the language being studied, this aspect looks especially attractive. In addition, educational technology rewards students for better concentration and cognitive endurance. Moreover, the inclusion of games makes the activity fun and brings it closer to real situations. The purpose of using gamification is to educate and engage one in the learning process. Through the use of illustrations, gamification helps generate interest in even the most complex subjects.

Result

For example, I would like to highlight the work of Pushkin Institute colleagues, who launched ***TORFL GO*** two years ago as a tool for preparing for the TORFL exam. There are several levels of the exam included in the application (from A1 to C1) that assists students in preparing for the exam and indicate mistakes they made. Online universities will soon feature Edtech applications. Electronic technology is closely related to the age of knowledge, which requires people to have a high level of education and skills. However, many people lack access to qualified education because of the lack of electronic equipment, awareness of educational technologies, and language barriers. Therefore, it is necessary to organize the dissemination of education adapted to the local needs and characteristics of the country, giving people the opportunity to receive expanded and flexible educational content in their native language. Locally adapted educational content can help ensure that people have access to educational tools or resources on the Internet. ***Massive Open Online Course*** (***MOOC***) is one way to meet the above need and one of the advanced ways to bring learning content to the target audience in South Korea.

Returning to the historical references of the past, it was in Korea that there was a huge gap in education. From the time of colonization from 1910 to 1945, many local residents did not have the opportunity to receive a normal basic education. The creation of a ***Massive Open Online Course (MOOC***) helps to expand the educational framework and make it more accessible not only to the younger generation of the country, but also to its older citizens. Moreover, the rector of Korea Cyber University created a free Korean language course in an online format on the basis of his university's, up to the 4th level of language proficiency, and you can immediately pass the exam and receive a certificate of proficiency. (www.cuk.edu) "Fast Korean" is how the course developers called their

program. At the moment, access to the course is not only on the website of the university, but also on the Youtube channel.

Motivation, engagement, and achievement can sometimes be challenging for students. In order to improve the quality of education, teachers are introducing advanced educational technologies. Gamification is a trending technology in many fields, including education. With this technique, game elements can be reused in non-game or educational content with some advantages, including lower financial costs and less professional skill in its design and development. By analyzing their enrollment process and course logs during the implementation of an online ***MOOC*** - a ***MOOC*** - this study validates the need for open education for adults in their native language. It also compares the impact of gamified learning content on a proposed fully online course with conventional content in order to determine the impact of gamification.

Research results

The experiment was conducted by the Ministry of Education of the Republic of Korea. The proposed online course was attended by 52 active listeners out of 75 registered users, who were grouped into two groups: experimental and control. In addition, a quantitative analysis of the learning platform logs was carried out to verify the improvement in user engagement and performance. The use of game elements in educational programs has significantly increased the percentage of citizens interested in learning.

It should be noted that the author of the article has long been conducting an experiment aimed at finding out the interest and level of academic performance of students studying the Russian language. By applying an educational methodology known as a flipped learning approach (Bergmann and Sams, 2012), the teacher shifts ~~his~~ attention to the needs of the students. The main goal of the lesson is to "turn over" work in the classroom and at home, passive and active acquisition of knowledge by students.

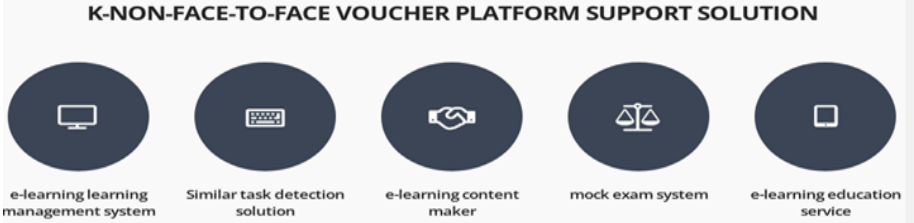
This method received positive feedback from both teachers and students. This system was used in the lessons of Russian as a foreign language. All difficult aspects were given with translation into the intermediary language, in our case into English, and the entire main part of the lesson was in a game form with translation from Russian into English. The practice described above gave a fairly high result of student achievement (Asanova, 2021).

High-quality and competent content also plays a significant role in online education. Numerous materials have appeared on the Internet that meets the high-quality standards of educational material. Among the video-textbooks that meet~~s~~ the most stringent pedagogical and educational requirements, it is worth noting the video course on Russian as a foreign language: ***Amazing Russian***, authored and compiled by Professor of the American University Olga Jarrel (https://www.amazingrussian.com). The presented video-textbook is effective for students, who is studying foreign languages or receiving education not in their native language, but in an intermediary language.

It is worth paying attention to one of the leaders in the creation of South Korean Edtech systems ***Vision Tree***. This system has many attractive features for users. For example, one of them is for solving and detecting similar problems or plagiarism:

Developed using Korean technologies, such as similar ***anti-plagiarism report detection standards***: backup management capability; keyword discovery; comparison of similar student reports; the ability to compare the speed of copying between students of similar reports; detection of mandatory included offers.

Creation of content for e-learning: the content is developed in HTML5 format, works in various web browsers without a separate viewer; is easily adapted system for recalling web operations on various mobile devices and PCs; implements dynamic movement and interaction without the use of Flash; various scalability and high efficiency as a web standard; simultaneous learning function of intelligent devices (AI) (mobile, etc.) is supported by one source.



Pic.1 The figure shows a remote platform to maintain operation. https://visiontree.co.kr/bbs/board.php?bo_table=portfolio&sca=%EC%9D%B4%EB%9F%AC%EB%8B%9D%EC%BD%98%ED%85%90%EC%B8%A0%EB%A9%94%EC%9D%B4%EC%BB%A4

E-learning management system (LMS): eleven years as an online educational institution; maintaining an up-to-date environment and supporting an extended LMS; adhering to the guidelines of the South Korea Human Resources Development Service for telecommuting; adherence to accreditation assessment guidelines; services for the review and assessment of professional competencies; involvement of research institutes associated with the company, experts in systems, content, and design; a well-performing online educational institution recognized by a technology company; the company also provides 1:1 consultations and know-how for distance learning, the organization has a large network of educational institutions.

Practical test system: method — question bank, a new type of question for each exam, which (even the last question bank of 3-5 years ago is available; random questions can be asked every time you take an exam) provides an explanatory video for each question so you can better understand the essence of the matter! (Incorrect answer notes support baseline and basic videos, and also videos are supported for each question, module, and type. In addition, a mock test has been created. The DEMO test consists of the same time frame and test environment as the actual test; diagnosis of weaknesses (knowledge areas) and provision of images with comments (by areas with a radial graph); including an explanation of incorrect answers. Thanks to a thorough analysis of the student's knowledge, the teacher receives a complete report with comments, which allows the student to quickly and easily correct her or his mistakes and work out poorly learned material.

Conclusion

Many university courses in Korea use a variety of educational methods. For example, most science courses still use writing instruments and read from a textbook, or go to study abroad. Recently, it has become possible to combine education methods: lecture, case study, or workbook method in English or another more modern way: South Korean universities are promoting their e-learning technologies that have been adopted in the US and UK. They use interactive technology and large screen monitors that allow professors to comment on students' work faster than reading a paper copy of a lecture.

As regards gamification, it is necessary to take into account the changes in the "source material" with which higher educational institutions have begun to work, forming a specialist necessary for the country, acting in one or another area of the national economy and culture in general. It is worth noting that the use of gaming technologies in educational activities is not a new idea in Russian pedagogical science; teachers of the past repeatedly addressed it. In the second half of the 20th century, within the framework of the Soviet school, there was an active search for increasing the effectiveness of vocational training with the help of business games, as evidenced by the works of V. N. Burkov, A. M. Knyazev, I. P. Loginov, A. M. Smolkin, V. V. Khripko.[12]

Currently, Korean universities have the opportunity to hire teachers from universities in different countries. This was not common in the past. Universities have opened their doors to work from home on certain courses. Any student studying technology or teaching in the US, Australia, or the UK will be able to use the new South Korean technology, and their English teachers will be able to work online as native speakers.

An example of an online technology for education is ***Educare*** (https://www.educare.co.kr/), which was launched by South Korean universities in 2010. Korean universities offer many unique courses in technology and teaching. This website focuses on providing modern online education to students around the world. Educational technology projects outside of universities tend to be smaller and more flexible. The practice of lecture courses has become increasingly popular in South Korean universities. One university in South Korea has already started its first international collaboration with a technology college in Europe.

The core course for teaching technology or teaching in the US, South Korea, or the UK is a standard university course for South Korean universities that use technology for online learning. Detailed information is provided on the ***Educare*** website. At the government level, many programs have been created that operate in various areas: there are technologies that help sick students reduce absenteeism; encourage citizens to use technology to receive fundamental education. The Ministry of Education has made the personalization of education in South Korea a priority. The State project ***EducationWeb*** and ***EducationWorld*** (http://educationweb.co.kr/) are educational programs for all ages.

In South Korea, technology is being used to personalize learning for students at all levels. Education can be enhanced by gamification, from the development of educational apps that help build new vocabulary, practice pronunciation, and provide examples of video situations where the new vocabulary is utilized, to the use of educational apps and games by foreign language institutions in global university programs. ***TORFL GO*** is an app that helps Russian language students prepare for the TORFL exam, for instance.

Psychologically, students experience tremendous stress when taking any exam, especially qualification tests. And this is understandable; often the result of the test affects the subsequent picture of the student's learning. For example, students of our university after passing the exam have the opportunity to go on an internship in Moscow. In case of failure to pass the TORFL-1 exam, the internship is postponed for a whole year, as a result of which the student loses time and the opportunity to get a job. Considering the above, demo tests and gamification make a good foundation for mock exams, helping students to focus and pass the exam successfully on their first attempt.

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Information about the authors:

Svetlana A. Asanova (Incheon, South Korea) *- Ph.D. in field of Electronic Lingua-Didactic, she is an Assistant Professor at Incheon National University, SONAS College, Incheon, South Korea. (119 Academy-ro, Yoensu-gu, Incheon, 406-772, South Korea), svetablue46@gmail.com. She has more than 35 publications. Field of research: Ed-tech, media linguistic, electronic-lingua-didactic, bilingualism, ethno-methodic, discursive linguistics, innovative methodic and technology for education, business communication for Economists, and teaching English as second language.*

Svetlana M. Minasyan (Yerevan, Armenia) *- Ph.D., Professor Ijevan Branch of the Yerevan State University, Department of Foreign Languages and Literature, Department of Russian and Foreign Languages, Russian State Vocational Pedagogical University.*
http://orcid.org/0000-0001-93014927; SCOPUS Author ID: 56576171400; SPIN-code 765 668; SPIN-code 6745-3510. Research interests: neology, cross-cultural communications, cross-cultural didactics.
E-mail: s.minasyanpmesi@gmail.com
Contribution of the authors: *Solely the authors contributed to the present research.*