

THE EXPERIENCE IN CREATING AND IMPLEMENTING DIGITAL EDUCATIONAL RESOURCES AT UNIVERSITIES DURING THE PANDEMIC

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Abstract

The COVID-19 pandemic has given a rise to the rapid development of online learning in all fields of education. Nowadays universities are trying hard to accelerate the digitalization of education, by stimulating the creation and application of digital educational resources (DER). In general, digital educational resources are aimed at realizing the following goals: on the one hand, to improve the quality of educational process, on the other hand, to form the information technology (IT) competence of students, teach them the skills of using and evaluating the validity and reliability of digital resources for professional needs. The proper use of DER enhances active learning, independent search, logical processing of information as well as it contributes to the development of creativity and critical thinking.

The aim of this paper is to analyze the most common features of digital educational resources, and to show the process of their creation and implementation for university students. For these purposes, during the empirical stage of our research a digital educational resource named "Practical English language course" for students of Kazan University (Russia), majoring in Linguistics, has been created and implemented. The course has a modular architecture. Each unit has a recognizable structure and consists of the following sections: topical vocabulary, reading, listening, grammar study, writing and speaking. The course is supplemented by thematic video, achievement tests, news boards, forums and chats. Experimentally, we produced several game-based assignments using interactive H5P application. The course is deployed on the university e-platform, supported by LMS Moodle, which is rather popular within the Russian academic community.

The methodology of the work is based on the comparative analysis of behaviorism, constructivism and connectivism theories as well as on communicative, collaborative and competence-based approaches. The results of the work can be used by teachers, educators and e-learners.

Key words: university, students, digital educational resource (DER), online learning, IT competence, critical thinking, language studies, pandemic.

1 INTRODUCTION

The creation of digital educational resources (DER) is defined as one of the main directions of informatization of all forms and levels of education in Russia. This process has been accelerated during the pandemic of 2020. The development of the information services industry in the education sector, including the production of DER and software and methodological support, along with the creation and development of telecommunication structures of individual educational institutions and the industry as a whole, education quality control systems forms the basis for the formation of the infrastructure for informatization of education [1].

A digital educational resource (DER) is understood as an information source containing graphic, text, digital, speech, music, video, photo and other information aimed at realizing the objectives of modern education [2]. In one digital educational resource, information (or information and reference) sources, tools for creating and processing information, and control elements can be allocated.

In general, DERs are aimed at realizing the following goals: on the one hand, to improve the quality of educational process, on the other hand, to form the information technology (IT) competence of students, teach them the skills of using and evaluating the validity and reliability of digital resources for professional needs. The proper use of DER enhances active learning, independent search, logical processing of information as well as it contributes to the development of creativity and critical thinking.

Among the main affordances of DER we can name interactivity, adaptivity, feedback and choice [3]. As for interactivity, the technology systematically responds to actions of the learner. For instance, some serious games immerse learners in virtual works through role-playing and interaction with a gaming community. Reading a book, listening to an audiotape, and viewing a film are not interactive technologies because these do not present new information in response to the actions of the learner.

Speaking about adaptivity, we should note that technology presents information that is contingent on the behavior, knowledge, and characteristics of the learner. A technology can be interactive but not adaptive, as in a game that offers the users choices but does not alter the options in response to the users' choices or actions. Conversely, intelligent adaptive learning programs are designed to be adaptive and interactive, so that when learners use the software, it assesses and may respond selectively to every task-related action on the part of the learner, including giving right and wrong answers, length of time taken in making decisions, and the learner's individual decision-making strategies.

The technology gives feedback to the learner on the quality of the learner's performance, sometimes including how the quality could be improved. The feedback can range from a short message that a learner's input or response was correct or incorrect to an explanation of why the input was correct or incorrect. Task-relevant feedback can range from responses to short-term events that last a few seconds to long-term performance extending over a school semester.

The technology gives students options for what to learn and how to learn so they can regulate their own learning. For example, choice is low for an instruction-oriented technology that pushes an agenda with few options for learner exploration. Choice is high, for instance, when students explore the Internet to find answers to their personal questions.

The aim of this paper is to analyze the most common features of digital educational resources, and to show the process of their creation and implementation for university students. For these purposes, during the empirical stage of our research a DER named "Practical English language course" for students of Kazan University (Russia), majoring in Linguistics, has been created and implemented.

2 METHODOLOGY

The methodology of the work is based on a comparative analysis of such theories as constructivism (L.S. Vygotsky, J. Dewey, J.S. Bruner, B. Bloom, etc) [4; 5], behaviorism (J.B. Watson, B.F. Skinner, E.L. Thorndike, I. Pavlov, etc) [6], and connectivism (G. Siemens, S. Downes, R. Kop) [7; 8] as well as on communicative, collaborative and competence-based approaches by Western and Russian scholars [5; 6; 7; 8]. Connectivism is a kind of learning theory that was created by George Siemens. It can also be understood as educational theory or view or global strategy. Connectivism was a core principle used for designing the first MOOCs (unlike the "modern" versions that come out of elite universities and rather represent in our opinion a propaganda purpose). G. Siemens proposes connectivism as a learning theory for the digital age, a successor to behaviorism, cognitivism and constructivism [8].

During the empirical stage of the research a DER named "Practical English language course" for students of Kazan University (Russia), majoring in Linguistics, has been created and implemented. The course has a modular architecture. Each unit has a recognizable structure and consists of the following sections: topical vocabulary, reading, listening, grammar study, writing and speaking. The course is supplemented by thematic video, achievement tests, news boards, forums and chats. Experimentally, we produced several game-based assignments using interactive H5P application. The course is deployed on the university e-platform, supported by LMS Moodle, which is rather popular within the Russian academic community.

3 RESULTS

The main result of the study is the design and implementation of the course "Practical English language course", intended for the third-year students, majoring in Linguistics on specialties

“Translation and translation studies”, “Theory and methodology of teaching foreign languages and cultures”.

The students who have mastered the course must have the following competencies: the ability to freely express their thoughts, adequately using a variety of linguistic means in order to highlight relevant information; the ability to use etiquette formulas in oral and written communication; the ability to understand the social significance of their future profession, to possess high motivation to perform professional activities.

The students must know spelling, pronunciation, lexical and grammatical norms of the English language within the requirements of the program.

They should be able to:

- present material orally in accordance with the communication situation, correctly using the studied speech forms;
- conduct a conversation in a given communicative sphere and communication situations, solving certain communicative tasks;
- understand by ear texts that reflect colloquial, everyday-colloquial and journalistic styles of speech;
- write correctly, observing the rules of punctuation, within the limits of the lexical minimum provided for by the program, various types of dictations and presentations.

The students must have the ability to use:

- monologic and dialogical speech in situations of official and colloquial communication within the studied language material;
- different types of reading (comprehensive, scanning, skimming);
- productive written speech (official and colloquial) within the studied language material;
- skills of correct spelling within the lexical minimum provided by the program.

Finally, they must demonstrate the ability and willingness to apply the acquired knowledge and skills in practice.

The course has a modular architecture. Each unit consists of the following sections: topical vocabulary, reading, listening, grammar study, writing and speaking. The course is supplemented by thematic video, achievement tests, news boards, forums and chats.

To implement the tasks successfully, it is necessary to consider 3 aspects of preparation and work with material: work with lexical material, work with grammar material and work with textual reading material. When working with lexical material, as well as when translating textual material, the students should pay attention to the polysemy of lexical units of the English language; therefore, when working with a dictionary, it is important from a set of meanings choose the one that corresponds to the specific context in which the given word occurs.

Before doing grammar exercises aimed at practicing a certain grammatical phenomenon, they need to refer to the required rule.

The translation of the text begins with the title. Translate the title and try to guess the content of the text. When starting to translate individual sentences of a text, make sure you understand their grammatical structure. Assessment of student work is carried out based on the degree of his or her preparation.

When preparing for the test, you need to refer to the previously studied material. To master the spelling form of a word, it is recommended to write it many times with the subsequent self-verification with the help of self-dictating. To achieve strong memorization, it is necessary from time to time to return to the words studied and repeat them yourself. Revising grammar material, you must refer to the appropriate rule, and then practice using it yourself.

The DER “Practical English language course” involves the following themes:

1. Bringing up children
2. Painting
3. Talking about people

4. Feelings and emotions

5. Man and nature

Let us consider Unit 1 "Bringing up children" as an example.

It starts with Topical vocabulary which concerns relations and upbringing, such as Children's reaction: to live up to smb.'s expectation, to do smth. on purpose, to have admonitions and warnings, to be encouraged to ask questions, to be curious and inquisitive, to learn by imitation, to feel part of the family, to hate questions which try to trap, to be pushed into making up lies, to choose between telling a lie or giving embarrassing answers, to appreciate smth, to become a nuisance (resentful, spiritless, delinquent).

Having studied Topical vocabulary, the students are supposed to implement vocabulary tasks: filling the gaps, matching the words with their translations, finding the words with the opposite meaning.

Then, the students have to read and translate the text "Parents are Too Permissive with Their Children Nowadays" [9]. After reading, they are to answer the following questions on the text, record their answers and attach the audio file:

1. What are modern psychological ideas in the field of bringing up children? Why do you think the author of the text rejects them?

2. What's your attitude towards "good old-fashioned spanking" and physical punishment in general?

3. Two extremes discussed in the text do not seem to produce good effect. What do you think is important in order to have normal relations between parents and children? Is tolerance necessary?

In Listening task the students listen to the recording "The role of nature versus nurture" and do the test (tick the phrases they hear, choose the correct answer, fill the gaps).

In Grammar task they study Verb patterns and do the test choosing the right verb forms.

Next task – Watching a video "Generation Gap" and doing some tasks (answering the questions, matching the sentences with the speakers, discussing the topics with the groupmates).

Before doing Writing task, the students must read the summary "Should your child learn a musical instrument?" and think of points 'for' and 'against' the following statement: Children should start school younger than they do now. The task is to write a summary (200-220 words) of their opinion about the issue.

Finally, they have to do a Test on the vocabulary and grammar studied in Unit 1. A forum and a list of literature to the unit come at the end of the section. Other units have similar structure. There are also Achievement Tests and Final Test.

As we have seen, the structure of the course is quite easy to understand. Following the instructions, students can implement all the tasks individually in the class or at home and the system checks and evaluates them online. If the task is done incorrectly, the student can implement it again. The number of attempts is set by the teacher. The teacher can also see a list of students' results and evaluate their work on the course.

The students of Kazan University have been successfully studying the DER for 4 months. Among the advantages of the course, they highlighted such benefits as easy access to learning, ability to self-modify course materials, building individual educational trajectories, multidisciplinary character of the educational content, and habitual Internet environment. Thus, the proper use of DER enhances active learning, independent search, logical processing of information as well as it contributes to the development of creativity and critical thinking [10; 11].

4 DISCUSSIONS

Considering the creation of DER, we should mention constructivism, which is a theory about how people learn. This theory suggests that people create their own understanding and knowledge of the world through experiences and reflection on those experiences. It is necessary to suggest that when students encounter something new, they have to integrate it with previous ideas and experiences by connecting the new knowledge to something already known. It may mean the students are studying something completely new and different. Sometimes it will result in the student rejecting the ideas completely. Above all, the theory assumes that we are active creators of our own knowledge requiring

students to ask questions, explore, and assess what is known or learned. Students are therefore creating their own understanding and knowledge of the world through their study choices [12].

Some modern researches state that there is a significant positive effect of the use of digital resources in teaching on the development of students' creative, theoretical thinking, as well as the formation of so-called operational thinking aimed at choosing optimal solutions [1]. A number of psychological studies point to the creation of opportunities for the effective formation of students' modular-reflective style of thinking when using the DER in the educational process.

Other modern scientists prove that it is the use of electronic educational resources in the educational process that allows the teacher to put into practice innovative ideas and directions of individualization and informatization of education, such as building individual educational trajectories by students, introducing the principles of a competence-based approach into the educational process, increasing the independent activity of students, etc [13].

Besides, digital technologies such as e-learning, online learning, or Web-based learning provide many advantages for distance learning [14; 15]. Digital technology can support synchronous communication between instructors and students, such as participating in a live Webinar, using technology-based instruction in the classroom, or corresponding in a course chatroom (instructor and learners spatially separated but interacting in real time). It can also support asynchronous learning, in which the interactions between a human instructor and students are separated in time (and typically also by space), as when the instructor posts a video lecture or lesson on a course learning management system or Website [3].

The researches demonstrate that recent advances in technologies for learning can offer significant benefits, but the results will depend on the alignment of goals for learning, contexts, the type of content to be learned, characteristics of learners, and the supports available for learners and instructors [16]. Decision makers responsible for investments in technology need evidence about many factors that can affect implementation of instructional technologies on a large scale. Thus, effective use of technologies in formal education and training requires careful planning for implementation that addresses factors known to affect learning. These factors include alignment of the technology with learning goals, provision of professional development and other supports for instructors and learners, and equitable access to the technology. Ongoing assessment of student learning and evaluation of implementation are critical to ensuring that a particular use of technology is optimal and to identifying needed improvements.

5 CONCLUSION AND RECOMMENDATIONS

To sum up, we have identified and analyzed the most common features of digital electronic resources, their advantages and benefits and have showed the process of their creation and implementation for university students. During the empirical stage of our research a DER "Practical English language course" for students of Kazan University, majoring in Linguistics, has been designed and implemented.

The course is aimed at the formation of the competencies, consisting of the ability to speak and write and freely express one's thoughts in English, adequately using various language means.

The structure of the course is quite easy to understand. Following the instructions, students can implement all the tasks individually in the class or at home and the system checks and evaluates them online.

The students have been successfully studying the course for 4 months. Among the advantages of the course, they highlighted such benefits as easy access to learning, multidisciplinary character of the educational content, ability to self-modify course materials and habitual Internet environment.

The results of the work may be interesting to teachers, educators and e-learners who support innovations and feel free to create, collaborate, and communicate both online and offline.

ACKNOWLEDGMENTS

The work is performed according to the Russian Government Program of Competitive Growth of Kazan (Volga Region) Federal University.

REFERENCES

- [1] "Pedagogical aspects of the formation of collections of digital educational resources", Creation and use of digital educational resources. Retrieved from <https://textarchive.ru/c-2288937-pall.html> (10.01.2021).
- [2] T.V. Zyazina, "Experience of using digital educational resources in the educational process of training future life safety teachers", Digital educational resources in the educational process of the pedagogical institute and school: abstracts of the II regional scientific and practical conference, Voronezh, 2008.
- [3] "Key affordances of learning technologies", How People Learn II: Learners, Contexts, and Cultures, 2018. Retrieved from <https://www.nap.edu/read/24783/chapter/10#164> (05.01.2021).
- [4] P.C. Honebein, "Seven goals for the design of constructivist learning environments", Constructivist learning environments: Case studies in instructional design, pp. 11-24, 1996.
- [5] S.O. Bada, "Constructivism Learning Theory: A Paradigm for Teaching and Learning", IOSR Journal of Research & Method in Education (IOSR-JRME), 5(6/1), pp. 66-70, 2015.
- [6] W. Tomic, "Behaviorism and Cognitivism in Education", Psychology: A Journal of Human Behavior, 30, pp. 38-46, 1993.
- [7] F. Bell, "Connectivism: a network theory for teaching and learning in a connected world". Retrieved from <http://usir.salford.ac.uk/id/eprint/2569/1/ConnectivismEdDev.pdf> (30.11.2020).
- [8] G. Siemens, "Connectivism: A learning theory for the digital age". International Journal of Instructional Technology and Distance Learning, 2(1), 3-10. Retrieved from: http://www.itdl.org/Journal/Jan_05/article01.htm (09.03.2011).
- [9] V.D. Arakin, "Practical English course. 3rd year: textbook for university students", Moscow, 2006, pp.126-127.
- [10] "Open Educational Resources and Change in Higher Education: Reflections from Practice", Jenny Glennie, Ken Harley, Neil Butcher and Trudi van Wyk, Editors, published by Commonwealth of Learning, Vancouver, 2012.
- [11] N. Butcher, "A basic guide to open educational resources (OER)", A. Kanwar & S. Uvalir'c-Trumbir'c (Eds.). Vancouver and Paris: COL and UNESCO. 2011. Retrieved from <http://www.col.org/oerbasicguide> (28.11.18).
- [12] A. Blagoveshchenskaya, I. Ainoutdinova, A. Nurutdinova, E. Dmitrieva, "Interdisciplinary approach to language studies in training masters at universities in Russia", INTED2020 Proceedings: The 14th annual International Technology, Education and Development Conference, Valencia, Spain, 2020, pp. 9028-9033.
- [13] N.I. Isupova, T.N. Suvorova, "The use of electronic educational resources for the implementation of active and interactive forms and methods of teaching", Scientific-methodical electronic journal "Concept", 2014, Vol. 26, pp. 136-140.
- [14] A. Guseinova, R. Zayni, A. Blagoveshchenskaya, "The Practice of distance learning". Ad Alta-Journal of Interdisciplinary Research, 2020, Vol.10, Is.2, pp.54-56.
- [15] I. Ainoutdinova, A. Blagoveshchenskaya, A. Nurutdinova, E. Dmitrieva, "A paradigm shift in distance education in Russia towards open, massive and experiential modes of training", INTED2019 Proceedings: The 13th annual International Technology, Education and Development Conference, Valencia, Spain, 2019, pp. 5519-5525.
- [16] Aida R. Nurutdinova, Elena V. Dmitrieva, Elena A. Nelyubina, Liliya R. Nurova, Kira R. Wagner, "The interactive education in teaching languages: microblogging as the way to improve postgraduate students' communicative interaction in English", XLinguae, Volume 11, Issue 2, April 2018, pp. 120-135.