Content analysis of blended learning about Russian language articles in Scopus

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Abstract

It has been observed that there have been important developments in educational technologies in recent years/particularly, «COVIT - 19» has made these developments compulsory. The aim of this study is to analyze the published articles on blended learning in Russian language, scanned in Scopus, according to the content analysis. Content analysis model was used. In this context, 25 articles related to Blended learning in Russian language in the Scopus database were analyzed. The articles were read by the researchers one by one and analyzed by "classifying them by certain variables." Analyzed data' are explained by Tabulating. It has been concluded that articles on blended learning have increased in recent years. There has also been an increase in the number of articles and their authors in recent years.

Keywords: blended learning, modernization, online learning, content analysis' education;

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1. Introduction

Blended learning is a technology for organizing the educational process, which is based on the concept of combining technologies of the "full-time system" and e-learning technologies based on new didactic opportunities provided by ICT and modern educational tools (Murphy and Knight, 2016; Islam et al., 2022). In this article, we will analyze articles on this topic and also consider the meaning of blended learning and its advantages.

The term "blended learning" has been used in professional literature since the late 90s of the 20th century. However, it was only in 2006 in a book by Bonk and Graham (Bonk and Graham "The handbook of blended learning: Global Perspectives, Local Designs" – "Handbook of Blended Learning: Global Perspectives, Local Projects"), which is still considered one of the most comprehensive and comprehensive studies of blended learning, was given a general definition used by many modern scientists. In this regard, it is advisable to start with the analysis of the definition of this phenomenon and its components, as they were presented in their work by Bonk (Graham, 1998) and his colleague (Graham, 1998).

The authors of the book analyzed the existing interpretations and identified the following as starting points for their analysis. Mixed learning is combining different ways of learning, different teaching methods, and face-to-face learning with online learning (Curtis, 2006).

Another explanation for blended learning is based on the scientific work of Garrison and Vaughn in "Blended Learning in Higher Education: Framework, principles, and Recommendations" – "Blended Learning in Higher Education: Structure, Principles, and Approaches" (Garrison and Vaughan 2008)

They wrote: "Blended learning is not only an additional but also an expensive level of education. This means a fundamental change in the classical structure to increase student participation and expand access to educational structures on the Internet." The author pointed out that it can lead to fundamental changes: thoughtful integration of traditional teaching and online learning, rethinking curricula in subjects to optimize student participation, and reducing the number of traditional courses (Ngoasong, 2022).

Today, the topic of blended learning is more popular than ever before. This is one of the hottest topics related to changes in education. Partly thanks to Sal Khan, the founder of the Khan Academy, which has educated more than 10 million people. Students from at least 200 countries study here every month, and they have an extensive library. Thanks to instructional videos and interactive exercises, the idea of blended learning is becoming ubiquitous. Among the main advantages of this training are the following: Each student has the opportunity to master the necessary knowledge and skills in an appropriate format; planning and understanding what needs education should meet and what results it will bring; provide effective learning management tools; reducing the time and financial costs of education without losing the advantages of the traditional approach; technology and teaching enrich and complement each other; active social interaction of students, both among themselves and with teachers; teacher availability is almost constant; education is possible regardless of time and place; various didactic approaches; improving the quality of education (including the use of more effective learning tools); individual monitoring of education; modern means of business organization, natural mastery of communication by students; priority of independent activity of the student; organization of individual support for the educational activities of each student; use the organization of group learning activities; flexibility of the training trajectory; and integration of online and offline educational and methodological content for multiple use (Horn and Heather, 2016).

Blended learning is a technology that organizes the educational process based on the concept of combining e-learning technology based on new learning opportunities provided by ICT and modern educational tools, and technology of a "full-time system." This article discusses blended learning models, their advantages in learning, and potential problems when using them (Kundu et al., 2021; Fleischmann, 2021).

Blended learning is already common in the United States and Europe. This is due to the presence of a good level of Internet communication and the level of computer knowledge of the population. Technical (computer) equipment of potential students also plays an important role. It is these three factors that complicate the development of Internet education in Kazakhstan – the level of Internet communication is comparable to European only in Nur-Sultan and the central cities of Kazakhstan, as well as the level of computer literacy and equipment of potential students. However, this does not mean that universities should not develop to provide students with relevant new knowledge and skills. It is necessary to use and develop new technologies in education (Main and Slater, 2022; Palvia et al., 2018).

The essence of the mixed form of education is that the technology of Internet education supports traditional full-time education. Students can use the university's distance learning system, which contains all educational materials, a built-in testing system and access to various online libraries and resources. In a mixed form of training, some control activities can be conducted online, and the ability of SDO to communicate with groups can also be used to carry out various projects. To date, this form of education is used in many European universities and is the most suitable in the current situation in Kazakhstan (Horn and Heather, 2016).

However, the experiences of Western countries that actively use e-learning, and its comparison with traditional forms of education based on direct personal communication between teachers and students, reveal the advantages and disadvantages of the obvious differences of each form. Benefits include;

-Flexibility; the study time does not depend on the schedule of classes at the university; the place of study is not limited by the office wall; the pace and rhythm of study are not related to the rhythm of work and the rhythm of other students in the group; ensure participation;

-Adaptability; the ability to organize the learning process for students with different abilities and needs;

-Personalization; the educational process is carried out in accordance with the personal educational needs and abilities of students. Teaching methods and techniques used by teachers are complemented by interactive learning tools and adaptive software;

-Interactivity; the use of variable forms and methods of interaction between two participants in the educational process, as well as forms and methods of their interaction with the content;

-Depth of reflection; students have time to think more carefully and deeply and demonstrate their judgments (Alyoussef, 2023).

Weaknesses include;

-Spontaneity; E-learning technology does not contribute to the rapid formation of associative chains of thinking and intuitive discoveries;

-Postponement, may have a tendency to postpone educational activities;

-Personal (human) connection. Many people consider this environment impersonal, which can lead to dissatisfaction with the process.

The emergence of hybrid learning technology made it possible to combine the advantages of electronic and traditional forms of learning (Nagaeva, 2013).

Blended learning consists of three main parts:

- Traditional direct personal interaction of participants in the educational process (face to face - F2F);

- Interactive interaction using computer communication technologies, electronic information and educational online resources as a medium (computer-mediated – CM);

- Self-education (self-study – SS).

The key word in the definition of blended learning is interaction. The introduction of mixed learning into the educational process allows us to solve some problems:

1) Notes for students: Expand the educational opportunities of students, increase the accessibility and flexibility of education, taking into account their personal educational needs and the speed and rhythm of mastering educational materials; implement individual courses, unlimited choice of topics, levels of development, and form of organizing educational activities; personalization of the educational process, students independently set educational goals and methods of achieving these goals, taking into account their educational needs, interests, and abilities; maximum objectification of evaluation procedures and results; promote the formation of the subjective state of students: increase independence, motivation for social activities, and cognitive activity; seek individual advice from teachers to overcome difficulties in mastering educational materials; and eliminate knowledge gaps (Cronje, 2020).

2) For teachers: Professional development of teaching staff; gain qualifications and skills to implement the next generation FGOS; to increase the effectiveness of pedagogical activity to achieve new educational results; use new types of control and communication in the educational process; ability to organize high-quality work with motivated students; and change the way teachers work: from translating information to interacting with students who contribute to the formation of students' own knowledge (Huang et al., 2021).

3) Organize the training process: The possibility of saving money by increasing the effectiveness of teaching activities; attracting more students by organizing interdisciplinary training; to solve the problem of shortage of teaching staff; and strengthen educational activities to allow time for the realization of other educational and cultural needs.

Examples of mixed learning organizations include e-courses, practical classes, specific project work, job rotation, e-books, mobile learning, coaching, caste, face-to-face courses, on-site training, educational games and modeling, formal training with certificates, and so on.

There are many tasks that allow us to solve the implementation of a mixed learning process:

-Taking into account the personal educational needs of students, as well as the speed and rhythm of mastering educational materials, to increase the accessibility and flexibility of education to expand the educational opportunities of students;

-To stimulate the formation of the student's subjective position: to increase his motivation, independence, social activity, including the development of educational materials, reflection and introspection, and, consequently, to increase the effectiveness of the entire educational process;

-Transformation of teachers' working methods: from the translation of knowledge to interaction with students, as well as assistance in the formation of students' own knowledge;

-Personalization of the educational process, when a student independently determines his educational goals and ways to achieve these goals, while taking into account his educational needs, interests and abilities. Students become listeners, teachers become mentors, and dean's office staff become organizers of the educational process (Dudar et al., 2021).

The activities of teachers include the coordination of the activities of full-time and part-time students in a high-tech information and educational environment, as well as the establishment of personal educational trajectories; the use of information and educational resources for the organization of various activities; and the choice of e-education.

Let's name the main elements of the hybrid learning model:

1. Lectures: Lecture materials are developed in the form of presentations and/or online courses.

2. Seminars (face-to-face meetings): Courses can be combined with lectures. Discuss the most important topics of the discipline and the development of practical skills.

3. Educational materials on the subject (textbooks and manuals): The materials are presented in printed and electronic forms using various multimedia applications.

4. Communicate online with teachers and students.

5. Individual and group online projects (collaboration): develop Internet skills, analyze information from various sources, work with a group, and distribute responsibilities and responsibilities for the performance of work.

6. Virtual classroom: Communication between students and teachers using various methods of Internet communication.

7. Audio and video lectures, animation, and modeling.

Thanks to blended learning, there are fewer courses in the classroom – some courses are being converted to an online model. For online courses, you need to master certain materials yourself or complete tasks. Online courses may be conducted according to a Q&A plan, or teachers may suggest topics for discussion and students may be asked to suggest topics. A deadline has been set for completing mixed learning tasks (Ngoasong, 2022).

The online course is divided into three stages: work "before," work "during," and work "after." "Before" work: Students should prepare for the course, contact other students and teachers so that they can discuss and formulate what they have learned and ask all the necessary questions.

"Timely" work is a contact: discussion of topics, tasks, consolidation, and verification of acquired knowledge with the help of tests, questions, or real tasks. Work "after:" fixing new materials, doing homework, testing, etc. Students' academic performance can be assessed online and in the classroom. Testing and execution of various projects and tasks can be carried out online. The final assessment – test or examination – is conducted only in the classroom.

To organize collaboration between students and teachers, use Web2.0 collaboration tools, such as social networks, user content, wikis, and blogs. Changes in teaching methods include:

      a. Study in more than one environment and expand the scope of activities of educational institutions;

      b. Collaboration in the project, content filling;

      c. Use e-books with multimedia content instead of textbooks;

      d. Active remote interaction between students and teachers;

      e. Adapt traditional teaching methods to new realities.

When the literature on blended learning written so far is examined, it is seen that there are quite a few sources written in the Russian language. This situation can be considered a problem for researchers who are native speakers of Russian and do not speak English. Therefore, examining the literature written in Russian and related to "blended learning" as a research problem and conducting an internal analysis can bring great contributions to the field. The aim of this study is to analyze the published articles on blended learning in Russian language, searching in Scopus, according to the content analysis.

2.Method

2.1.Research model

We used the data collection process in the Scopus database. Data collection is the process of collecting information and measuring targets in the current system, which subsequently allows you to answer relevant questions and evaluate the results obtained. Data collection is part of research in

all areas of cognition. He helped us gather all the necessary information on articles on the topic of blended learning. Hence, we will use the content analysis model in this research.

2.2. Database and data collection process

Why choose Scopus «Scopus combines excellent data quality and coverage, sophisticated analytics and advanced technologies in one solution that is ready to combat predatory publications, optimize analytical capabilities and workflows of researchers, and improve decision-making efficiency. We can find a lot of information on the topic of blended learning».

Since 1996, he has been tracking the citation of published scientific articles by scientists from various industries. The system covers more than 5000 publishing houses around the world and more than 18 thousand publications. Journals indexed in Scopus get access to scientometrics, comparative analysis, and evaluation of the quality of scientific activity.

It took us 3 days to process all the information, during which time we managed to analyze all the works, reviewed 20 articles on this topic, choosing five main topics related to blended learning. We used SCOPUS to process data, based on keywords, we go to the analyze data tab where we can consider the level of development of the topic "Blended Learning" around the world. After analyzing each work and identifying the relevance of the topic, we moved on to writing articles on this topic

In our scientific activity, first of all, we started with the choice of a topic. We settled on "Blended Learning," because, in our opinion, this topic is very relevant in connection with current trends around the world. After choosing a topic, we moved on to keyword search, which allowed us to quickly find the necessary information.

To get the necessary information, namely articles, we needed to go to Google Academy using keywords. We have selected issues of articles for past 5 years, as well as authors, countries that were interested in this topic. We do not consider 2021 for evaluation of the data. The Scopus search result is seen in below image.
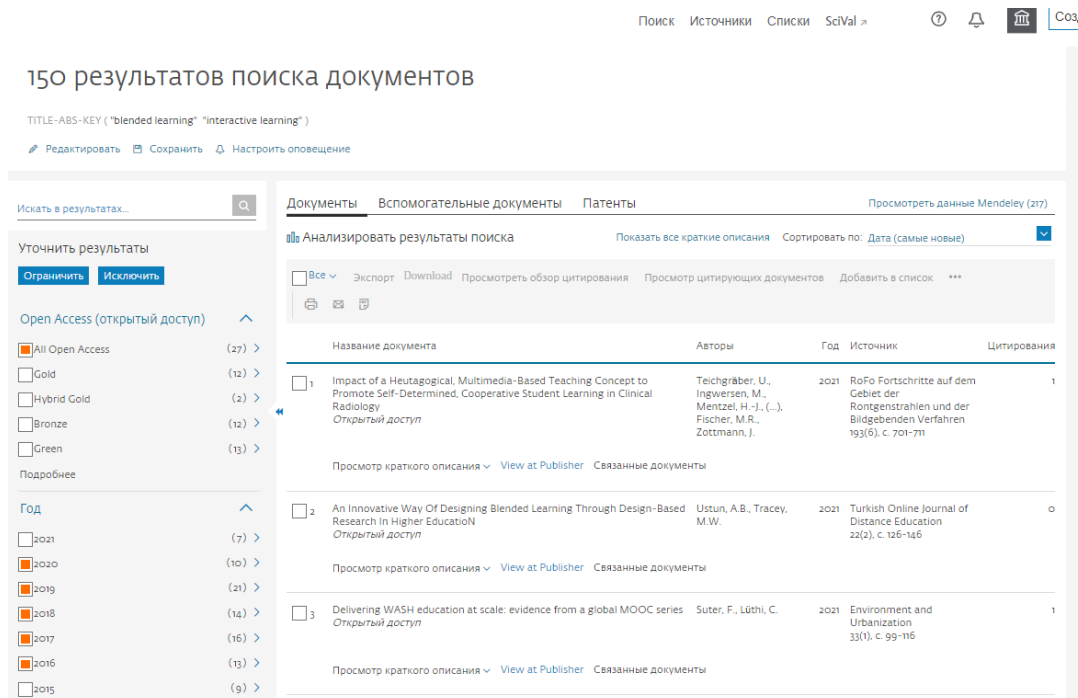

Image 1. Scopus search screen

To achieve the purpose of this research, the Scopus database was entered. In the subject section, the keywords "blended learning" and "interactive learning" are written. Then, when selecting the "Russian" language from the language section, "only `open access" was selected to provide access to

articles. As a result of the scanning, we choose that 20 articles were accessed open accessed. In the meantime, the publications published in the past 5 years have been included in the scope of the research.

I managed to review 20 articles that were related to mixed learning and natural sciences. After the analysis, I chose five topics related specifically to pedagogy.

2.3. Data analysis

We believe that the use of blended learning will have a positive impact on learning both at university and in classrooms. This method helps to assimilate the material easier, which will allow students to memorize the necessary information faster. Our analysis of the articles showed that this topic is at the initial level, but we believe that it is behind online learning that the future is worth it. When the student can always attend the lesson and also view the lectures the required number of times. Using online learning, students become active and inquisitive.

2.4. Compliance with Ethics

The study is not based on patient data and is not a clinical trial. Ethics committee approval is not required for this article as it uses previously collected, anonymized, and publicly available data. Scientific ethical rules were followed in research writing.

3. Result

Based on the information received, we have entered all the data in a table for a visual analysis of this topic.

Table1. «Branchofknowledge»

№	Branchofknowledge	Documents
1	ComputerScience	61
2	SocialSciences	36
3	Engineering	23
4	DecisionSciences	7
5	Mathematics	7
6	Medicine	4
7	PhysicsandAstronomy	4
8	EarthandPlanetarySciences	3
9	Biochemistry, Genetics and Molecular Biology	2
10	Business, ManagementandAccounting	2
	Total	149

When we look at Table 1, it can be seen that there are quite a lot of studies in the field of "computer science" (n = 61), social sciences (n = 36), and engineering (23) concerning blended learning.

Furthermore, if we look at Table 1, we can notice that the study of Decision Science (n = 7) and Mathematics (n = 7) are at the same level. The following branches of knowledge by interest in the study of blended learning are Medicine and Astronomy. Based on the analysis of the table, it can be concluded that pedagogy is not interested in this training. We believe that for better education of students and schoolchildren, it is necessary to deepen this knowledge.

The implementation of Egitim-ogretim occupies an important place in blended learning. Blended learning applications are being developed for education. A small amount of research in the field of education is suggestive. For this reason, we can argue that the number of blended learning studies in the group of learning and teaching applications should be increased.

Table 2. Document type about «blended learning»

Documenttype	Documents
ConferencePaper	52
Article	19
ConferenceReview	10
BookChapter	5
Review	1

Considering Table 2 on the topic of blended learning, there are many conferences, their ratio is (n = 52), the articles themselves on the study of blended learning (n = 19), the review of the conference is (n = 10), total book chapters (n = 5), and a review (n = 1). This proves once again that this topic needs extensive study.

Table 3. Yearabout «blended learning»

Year	Documents
2021	5
2020	16
2019	10
2018	4
2017	9
2016	3

By studying Table 3, we can make sure that the study of blended learning in 2020 was the highest in 10 years. It consists of (n = 16) papers, in 2019 (n = 10), and in 2008 (n = 9) articles were published, and this year, the study of mixed learning consists of only (n = 5) articles.

Table 4. Countries that have studied blended learning

Country	Documents
Russian Federation	9
Spain	8
Germany	6
Ukraine	6
Turkey	5
United States	5
Brazil	4
China	4
Italy	3
Romania	3
Australia	2
Bulgaria	2

Based on the study of this topic in the table, we can conclude that this topic was most considered in the Russian Federation, its number is n = 9. Further, this topic was considered in Spain and Germany. In our opinion, the topic of blended learning is relevant and will continue to be considered in this world, because online learning itself is becoming an integral part of our learning.

Thus, blended learning is characterized by the preservation of the general traditional principles of the organization of the educational process and the inclusion of elements of online learning.

4.Discussion

Using the Scopus database, we were able to collect the necessary amount of information for further research. We analyzed the authors' works, which helped to better understand the features of mixed learning, and to understand at what level this training is all over the world.

We entered all the data into tables, which helped us to visually explore this topic. In the first table, we examined the areas of application of blended learning. Based on the results obtained, we were able to understand blended learning more easily. Data analysis has shown the importance of using blended learning in education.

5. Conclusions

The ratio of these two forms of education is determined by the degree of preparation of educational institutions of this kind for the construction of the educational process, as well as the desire and technical capabilities.

In our opinion, blended learning will help to activate the cognitive activity of students, which will lead them to independently search for information. We also believe that online learning is the future.

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