

Analysis of the Information and Communication Technology in Blended Learning for Economics Students in the Context of Digitalization

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Abstract: The study was aimed at analyzing the effectiveness of blended education for economics students using information and communication technology (ICT). The research methods consisted of literature analysis, case method, comparative analysis, mathematical statistics, and statistical experiment. The article describes the following results. Three Russian universities (Vladivostok State University of Economics and Service [VSUES], Kemerovo State University [KemSU], and Ryazan State Radio Engineering University [RSREU]) have introduced ICT to implement a blended model for teaching economic disciplines. This made it possible to use the strengths of traditional classroom and distance electronic education, as well as to quickly correct the problems that arise at the initial stage of ICT implementation, especially when training systems are integrated into international educational projects. The field study enrolled 236 economics students from the above-mentioned universities. The obtained empirical data confirmed some hypotheses regarding the effectiveness of ICT in teaching economics students. The practical significance of the article lies in the possibilities of applying leading ICT technologies to improve the professional competences of future businesspeople in blended economic learning. The results obtained can help universities to shape a rational economic blended learning course to maximize the business impact for future careers in this field. Future researchers may pay attention to the effectiveness of using Massive Open Online Courses (MOOCs) in the context of improving the economic education of future entrepreneurs with the possibility of involving real business cases in their educational process.

Index Terms: Distance learning, information and communication technology, online learning, blended learning, economics student, economic disciplines, e-learning, digitalization.

1. Introduction

Information and communication technology (ICT) is considered in the education of economics students in two aspects. Firstly, ICT is a tool for solving professional problems related primarily to the processing and analysis of economic data. Secondly, ICT acts as an environment for learning, both to present educational content and to organize the teaching process [1]. The instrumental ICT component has been introduced into the education of economists for quite a long time. However, Internet technologies for organizing learning have become widespread in science and practice since the XXI century, and mainly in the last decade [2]. This happened due to the widespread introduction of the so-called electronic (e-learning) or online learning, in which experts see the central part of education in the future [3]. One of the developing varieties of e-learning is mobile learning (m-learning): it engages the use of mobile devices and all the diverse content contained on the Internet, including social media materials [4].

A distinction should be made between e-learning and distance learning [5]. The latter refers to an educational model when the teacher and the student do not interact “face to face” (for example, extramural or correspondence education are also varieties of distance education), although ICT is widely used in modern distance education, including for advanced training [6]. The core of modern e-education is the learning management system (LMS). It includes a set of software tools for administering the educational process, which is structured in the form of materials for online learning courses [7].

Education has been an important factor in international relations for centuries. Every country tries to take care of the effectiveness and implementation of the education system. Accordingly, institutions of higher education are constantly striving to implement educational projects on a larger scale, as well as research papers [8]. Interaction with educational projects outside a particular region allows students to actualize knowledge, skills, and abilities together with representatives of other nationalities; encourages creative personal and socially important activities in self-management and self-expression; implements the principle of interaction between education and practice, allows one to rally the team and the individual in the learning process [9].

The largest economies in the world, including the United States [10], China [11], the European Union [12], are actively developing programs to adopt ICT in education to develop the economy and staff through innovation. The widespread introduction of ICT in e-learning determines the relevance of research aimed at analyzing the factors for the successful use of ICT, as well as collecting empirical data to analyze the effectiveness of e-learning. The mainstreaming of ICT technologies into the higher education learning process is a fairly common system for improving the professional competencies of students. However, due to the specifics of the region under study and the high degree of differentiation in the implementation of the latest educational technologies in the world, there is a risk of low preparation of Russian universities for the implementation of such practices. Given the insufficient material resources in most Russian universities and the limited access to deliberative online resources, the task of implementing blended learning will remain understudied [13,14]. As a consequence, the scientific novelty of the article lies in the fact that it analyzed the effectiveness of ICT introduction for the blended education of economics students and obtained new experimental data confirming the ICT effectiveness.

The purpose of this article was to analyze the effectiveness of blended learning for students of economic specialties using ICT based on new experimental data. For this purpose, the following tasks were solved:

- Introduction of ICT in blended learning of economic disciplines in three Russian universities.
- Development of a questionnaire for a statistical experiment to assess the effectiveness of the introduction of ICT for blended learning in economic disciplines.
- Conducting a survey of economics students at three Russian universities.
- Testing the impact of implementing blended learning for economics students on their participation in international educational programs.
- Analysis of the study results to test some hypotheses:
 - ✓ H1: ICTs in the form of blended learning ensure student satisfaction with the learning process;
 - ✓ H2: ICT allows theoretical learning materials to be presented in an understandable form for students;
 - ✓ H3: ICT makes it possible to present practical learning tasks in a way that students can understand;
 - ✓ H4: ICT in blended learning encourages students to make greater efforts to acquire new knowledge;
 - ✓ H5: ICT in blended learning does not reduce academic performance.

2. Literature Review

At the present stage, the evolution of e-education, including in the field of teaching economists, is due not so much to the development of theoretical knowledge as to the development of technologies. In the last 20 years, scientific research on educational ICT has been and is mainly descriptive, not supported by sufficient empirical data [15]. This is especially true of the Russian education system, which is the subject of the current study. To a greater extent, qualitative research is typical for Russian scientists; however, statistically valid results are lacking abroad.

The advantages of using ICT for teaching economists include the following [16,17]:

- Reducing the total financial and time costs for education, both for the university and for students.
- Possibility of obtaining knowledge at any suitable time in any place.
- Possibility of access to global and up-to-date information resources using modern technologies.
- Arbitrary pace and content of learning, as well as natural diversification of materials (e.g., videos, slides, and lecture notes), correspond to the student's personality.
- Possibility of forming individual learning trajectories within the student-oriented model.
- The convenience of asynchronous communication between teacher and student through available electronic channels.
- Operational management of the structure and content of educational materials in LMS.
- Visual display of progress in teaching a student using LMS.
- Increasing the motivation of students associated with cognitive activity and the development of creative abilities.

The effectiveness and attractiveness of ICT use are influenced by factors such as students' behavior and attitudes to learning, life experiences, cultural and demographic characteristics. Teachers should understand these factors when developing educational materials and organizing learning for economists [18]. At the same time, when considering the research aspect of Russian universities, one should also mention the resource and material support of these universities and the limited access to information. At the same time, e-learning offers unprecedented opportunities to integrate the national educational system into the international one, reinforcing university activities with a variety of multicultural educational projects [19]. Thus, based on the results of studying the correlation between students' engagement and their progress in online international studies, the authors found significant differences between the two groups of respondents. For example, online students spent less time overcoming the interpersonal barriers encountered during the adaptation to international study [20]. However, in the context of engaging students in blended learning, one needs to determine its effectiveness with minimal electronic resources and an adaptation period for students.

ICT-associated problems in the educational process include the lack of communication with the teacher, the difficulties in the objective assessment of students, the need for an individual approach to their motivation. That is why, in some cases, researchers note a decrease in the effectiveness of using ICT to train economists [21]. This problem can be solved by so-called blended learning, in which classroom lessons alternate with independent use of ICT [22]. As a result, the focus for the transformation of learning in the current environment was precisely on blended learning.

The features of ICT introduction in teaching economists in the Russian Federation include [23]: weak interaction between teachers of economic and computer disciplines, refusal to purchase licensed software due to its high cost, the difficulty of motivating commercially successful companies to interact with universities. Recently, there has been an increase in integration processes in economic and information areas of educational programs and scientific research. The economic topics of lessons are becoming more complex and enriched with new knowledge and approaches implemented within the formation and development of the digital economy. Therefore, when the students of economic areas and specialties prepare scientific reports in blended learning conditions, they are recommended to use the latest scientific sources for the prompt inclusion of innovative knowledge in the educational process. Such resources reveal the possibilities of increasing the competitiveness of Russian enterprises in the context of digitalization of the world economy [24].

At the same time, studies by Russian scientists point to the effective use of digital education tools for implementing international institutional programs and platforms, especially those related to the social and humanitarian components. Their research points to how the open online pedagogical space, which includes internships in other countries and international innovation platforms, reveals the model of professional development and globalization of teacher education in Russia [25]. However, given the global challenges of the pandemic, there is only the possibility of long-distance collaboration with international universities and educators. As a consequence, ways should be sought for effective collaboration through ICT in education.

ICT used in universities contributes to the improvement of methods and means of teaching economists through digital tools such as interactive environments for mathematical modeling and data visualization, as well as visual illustrative material including photographs, videos, animations, and slides [26]. The studies performed have shown the usefulness of developing professional blogs, the regular content of which has positive results in teaching economics students [27]. The main forms of organizing e-learning are, firstly, an independent study of texts, videos, audio, and other materials, secondly, asynchronous (independent) interactive exercises, and thirdly, synchronous participation in online events such as webinars or teleconferencing.

Since the 2000s, the requirements for the ICT use for teaching economists have been enshrined in the Federal State Educational Standards (FSESs) for secondary and higher professional education (SPE and HPE) [28]. In addition, the FSESs determine the competencies of economics students in ICT application skills. Another area is teaching specialists with dual qualifications in economics and computer science (for example, "Business Informatics", "Innovatics" and others), whose training plans include both economic and engineering disciplines related to studying ICT.

A significant part of the research is devoted to the peculiarities of teaching applied mathematics to economists using modern ICT, since this discipline, firstly, causes significant difficulties in studying, and, secondly, is a basic

component of professional training [29]. However, not all universities have been able to effectively implement ICT technologies in the educational process, which is a motive for a detailed analysis of some universities. An analysis of ICT's impact on modern economic education highlights some trends in teaching economists [30]. They include increasing importance and higher number of interdisciplinary courses, the opening of new interdisciplinary specialties and programs, the development of postgraduate education, the use of new teaching methods and tools, increased cooperation between universities and business [31]. Not all studies have demonstrated a clear preference for students to use ICT for organizing e-learning [32]. For example, a survey of students from Botho University (Botswana) showed that distance e-learning was the best form of an educational process for only 23% of students, while 44% of respondents preferred blended learning, and 33% of respondents preferred traditional classroom education [33]. Thus, the lack of empirical data confirming the effectiveness of e-learning, as well as substantiating the factors for the successful use of ICT should be noted.

3. Materials and Methods

The study methods consisted of literature analysis, case method, comparative analysis, mathematical statistics, and statistical experiment. The statistical experiment was performed by a field survey that collected and analyzed the impressions of economics students from the ICT introduction in the educational process. A field study was performed in 2019 among undergraduate economics students in three Russian universities: Vladivostok State University of Economics and Service (VSUES, $n = 87$), Kemerovo State University (KemSU, $n = 74$), Ryazan State Radio Engineering University named after V.F. Utkin (RSREU, $n = 75$) (total $n = 236$). The mean age of respondents was 20.3 years for VSUES, 20.2 years for KemSU, and 21.1 years for RSREU. The mean age of respondents in three universities was 20.5 years.

The gender composition of the respondents was as follows: 40% males and 60% females for VSUES, 41% males and 59% females for KemSU, and 47% males and 53% females for RSREU. The mean ratio across the three institutions was 43% males and 57% females. The survey of students was performed at the end of the semester, during which economics students, for the first time in these universities, studied with partial use of the e-learning model. As a result, 221 questionnaires with valid data were accepted for processing, while the distribution of questionnaires by universities was as follows: 82 for VSUES, 71 for KemSU, and 68 for RSREU. The mean number of questionnaires across universities was 74.

The main tasks of this experiment in three universities were the following:

- Introduce advanced ICT into the educational process and train students and teachers in working with the LMS.
- Improve the independent work of economics students to obtain new theoretical knowledge and practical skills.
- Increase the motivation and interest of students in the study of economic disciplines.
- At the same time, ensure overall student satisfaction with the learning process, ensure the comprehensibility of e-learning materials, and prevent a decline in academic performance.

It should be noted that such an approach to ICT introduction was implemented in universities for the first time. It meant that neither teachers nor students had sufficient experience in blended learning in terms of economic disciplines. E-learning materials included both theoretical materials supplementing the main part of classroom lectures and interactive practical tasks related primarily to solving economic problems using mathematical modeling software packages (for example, Wolframalpha). The questionnaire used in the field study included five sections with some statements, to which students should give one of the following answers: "agree", "disagree", or "difficult to answer". The survey was performed at the end of the semester, in which ICT for blended learning was first introduced. These statements tested the truth or falsity of the formulated hypotheses. Thus, the following statements were used to test the hypotheses in the questionnaire:

- The statement "In general, I am satisfied with the way the learning is organized" was used to test H1 "ICT in the form of blended learning ensures student satisfaction with the learning process".
- The statement "I understand the proposed theoretical material" was used to test H2 "ICT allows presenting theoretical learning materials in a form understandable for students".
- The statement "I understand the proposed practical tasks" was used to test H3 "ICT allows presenting practical learning tasks in a form understandable for students".
- The statement "ICT motivates to make more efforts to acquire new knowledge" was used to test H4 "ICT in the form of blended learning motivates to make more efforts to acquire new knowledge".

The questionnaire was tested using Cronbach's alpha. The interpretation of Cronbach's alpha values is as follows: >0.9 excellent; >0.8 good; 0.7 acceptable; 0.6 questionable; and >0.5 bad (Gliem, Joseph A., and Rosemary R. Gliem, 2003). The cumulative Cronbach's alpha value for the questionnaire was 0.92 with values of 0.95, 0.92, 0.93, 0.87, 0.96, and 0.94 for the six dimensions in the order they were mentioned above. Conclusion: the questionnaire is reliable and can be used for the survey.

To test H5 “ICT in the form of blended learning does not decrease the academic performance”, the results of passing exams in the discipline “Enterprise Economics” after the introduction of ICT were compared with the results of passing exams of previous streams. To increase reliability, the results of students who took the exam in the previous three semesters were taken into account. To test H6, students were surveyed about their improved perceptions of the opportunity to study in international education projects. Students answered the question, "Would blended learning affect your involvement in an international education project in economics?" Students had the option of answering in a closed-form yes, no, or a more open-ended statement. The developed research complex was also tested for appropriateness of use in the context of improving professional competences of students in blended learning. For this purpose the authenticity check of the obtained effectiveness by Kolmogorov-Smirnov methodology was applied.

Input data:

$\{x_1, \dots, x_2, \dots, x_i, \dots, x_{N1}\}$ - vector of data received by students;

$\{y_1, \dots, y_2, \dots, y_i, \dots, y_{N1}\}$ - vector of data received by students (from previous streams).

Then T_1 T_2 T_3 were calculated, and then the benchmark for comparison:

$$Tb = Q\sqrt{((N1 + N2)/(N1 * N2))} \tag{1}$$

Comparing the results, the hypothesis of the effectiveness of the developed course is either rejected or accepted with probability 0.95.

4. Results

Validation of the studied course was determined using the Kolmogorov-Smirnov criterion (Table 1).

Table 1. Verification of the effectiveness of the developed program according to the Kolmogorov-Smirnov criterion

T_1	T_2	T_3
0.24	0.24	0.06
$T_1 > T_b$	$T_2 > T_b$	$T_3 < T_b$
the hypothesis is rejected; the impact of the introduction of blended learning for economics students on their participation in international educational programs is not found	the hypothesis is rejected; the impact of implementing blended learning for economics students on their participation in international educational programs is the same	the hypothesis is accepted; the impact of introducing blended learning for economics students on their participation in international educational programs is found

The field study was performed in 2019 among undergraduate economics students in three Russian universities: VSUES (n = 87), KemSU (n = 74), and RSREU (n = 75). Each of these universities had innovations related to the introduction of new ICTs in teaching economic disciplines (“Enterprise Economics”). When introducing ICT, preference was given to blended learning, which was a set of classroom and distance e-learning methods. This allowed using the strengths of both learning models and quick correction of problems that may arise at the initial stage of ICT implementation. At the same time, there was no complete rejection of classroom contact between teachers and students.

Table 2. Survey results of economics students on ICT use in learning economic disciplines

	VSUES	KemSU	RSREU	Mean
Number of respondents	82	71	68	74
In general, I am satisfied with the way the learning is organized				
Agree	81.7%	83.1%	72.1%	79.2%
Difficult to answer	14.6%	9.9%	19.1%	14.5%
Disagree	3.7%	7.0%	8.8%	6.3%
I understand the proposed theoretical material				
Agree	68.3%	67.6%	69.1%	68.3%
Difficult to answer	22.0%	23.9%	20.6%	22.2%
Disagree	9.8%	8.5%	10.3%	9.5%
I understand the proposed practical tasks				
Agree	67.1%	63.4%	64.7%	65.2%
Difficult to answer	20.7%	21.1%	17.6%	19.9%
Disagree	12.2%	15.5%	17.6%	14.9%
ICT motivates to make more efforts to acquire new knowledge				
Agree	74.4%	66.2%	70.6%	70.6%
Difficult to answer	17.1%	16.9%	11.8%	15.4%
Disagree	8.5%	16.9%	17.6%	14.0%
Examination score				
Before the ICT introduction for blended learning	3.72	3.84	3.9	3.82
After the ICT introduction for blended learning	3.9	3.78	3.95	3.88

Table 2 shows the survey results. The questionnaire was supplemented with the results of passing exams by students of experimental streams in the considered economic disciplines. The results of passing the exams were compared with the results of the previous streams. To increase the reliability of the results, three previous semesters were considered. Fig. 1 visualizes the survey data.

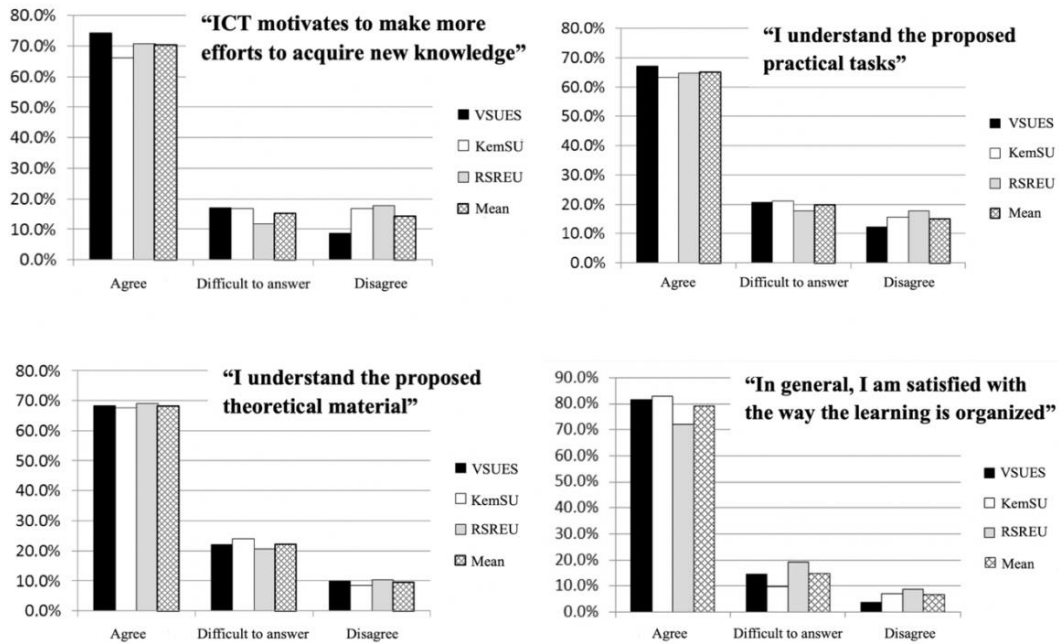


Fig. 1. Histograms of student survey results

The experimental data obtained were used to test the hypotheses. It should be noted that the mean values for all survey results (except for the exam score) were calculated based on the entire sample of students, rather than the arithmetic mean of the results of the three universities. The exam score was determined as the arithmetic mean of the three universities.

Approx. 72.1% to 83.1% of students (depending on the universities) were satisfied with the results of studying economic disciplines with the use of ICT. The average number of economics students who were satisfied with their academic performance was 79.2% ($p=2.73$). The average number of economics students who were not satisfied with their academic performance was 6.3% ($p=3.14$), and those who expressed an uncertain position were 14.5% ($p=2.99$). Thus, based on the data obtained, H1 was confirmed.

The theoretical material that was offered to be mastered with the help of ICT in blended learning was understood by 67.6%-69.1% of students. The internal correlation of the results among these respondents is low: $p=1.79$, i.e., the average proportion of such economics students in the three universities was 68.3%. The theoretical material was incomprehensible for 9.5% of students ($p=3.18$), and 22.2% ($p=2.39$) found it difficult to answer. Thus, H2 was confirmed. As for the practical tasks offered using ICT in blended learning, they were understood by 63.4 to 67.1% of students. The internal correlation of the results among the indicated respondents is low: $p=1.67$, that is, the average number of students who understood the practical tasks were 65.2%. Practical tasks were incomprehensible for 14.9% of economics students ($p=2.56$), and the number of those who found it difficult to answer was 19.9% (3.31). Thus, H3 was confirmed.

Approx. 66.2% to 74.4% of students believe that ICT in blended learning motivates them to acquire new knowledge when mastering economic disciplines. The internal correlation of the results among these respondents is low: $p=1.09$. On average, 70.6% of the students thought so. The number of students who denied motivation to learn with ICT was 14.0% ($p=2.57$), and other 15.4% ($p=2.68$) found it difficult to answer this question. Thus, H4 was confirmed. Regarding the examination scores for the economic disciplines examined, the average score for the three universities increased slightly from 3.82 to 3.88 after the introduction of ICT. The internal correlation of the results among these respondents is low, $p=1.24$. In one university, the average exam score decreased slightly from 3.84 to 3.78, while in the other two universities it increased (from 3.72 to 3.9 and from 3.9 to 3.95). Thus, H5 was confirmed.

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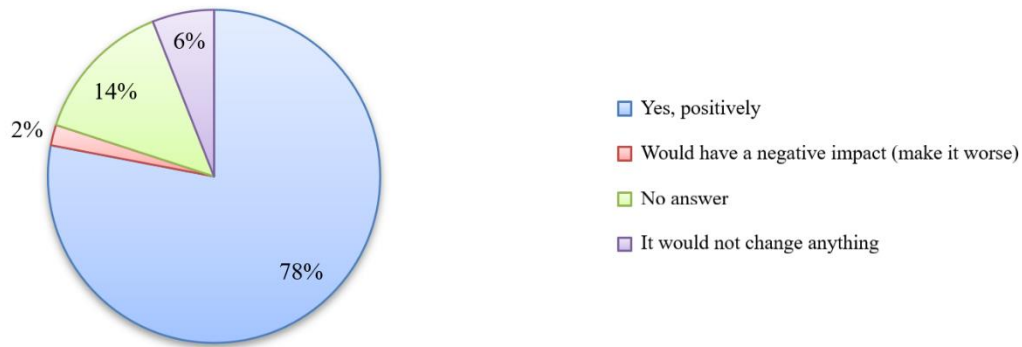


Fig. 2. Survey of students' involvement in international educational programs in blended (online) learning

The results of H6 student survey indicate that the vast majority of respondents envision e-learning as a springboard for self-actualization in international projects (78%). At the same time, almost 86% of them indicated that they would not hesitate to participate in an international economic forum or conference if they were held online. Only a small proportion of students (22%) focused on the negative or neutral relationship between the two components (Fig. 2). Based on the correlation of the results obtained, one can see that students who were taught using blended learning are more amenable to communication and knowledge processing than their predecessors (Table 3).

Table 3. Correlation of results by Spearman

	1		
Students (research group)	0.984898	1	
Students (previous stream)	0.935759	0.865475	1

In the future, a detailed comparison of the implementation of blended learning course on the experimental sample compared with the groups where distance and traditional training will take place is planned. A variety of blended learning opportunities will be used (online courses, trainings, AI, virtual/augmented reality).

5. Discussion

Qualitative and quantitative assessment of ICT effectiveness in the education of economics students is the subject for some foreign researchers. Abroad, attention is paid not only to the opinion of students but, first of all, to the impressions of economics teachers from the use of ICT. For example, a study involving 150 students from seven universities in Germany, for whom a common curriculum was organized, demonstrated problems in teaching economics and political science related to the complexity of interaction when organizing offline discussions alternating with synchronous online seminars [22].

A study conducted at the University of Nova Gorica (Slovenia) also identified some ICT issues related to the use of effective methods and tools for teaching economic disciplines, the development of teaching materials, and an increase in the quality of communication [26]. However, students noted some advantages of e-learning, such as the ability to have all learning materials in one place, to have constant access to all materials, taking into account the deadlines for completing assignments, the convenience of interactive materials in the form of short videos and exercises with a partial solution, the ability to be in contact with teachers and fellow practitioners using forums, no need to buy books.

In the same research, the authors collected quantitative data on ICT assessment by teachers, for whom the motivating factors were: the opportunity for students to have all the materials on the course curriculum in one place (81.0% of respondents), the possibility of converting course materials into an online format (52.4%), motivation and support from the university management (52.4%), the desire to follow the needs of their students (28.6%), the ability to control how and when students use online materials (28.6%). At the same time, only 9.5% of university teachers had previous experience in developing e-learning courses. As for the results of this study, it is important to note the critical importance in supporting teachers by the management, which does not always pay attention to it during ICT implementation.

Developing countries are also paying considerable attention to the development of e-learning. For example, a study performed in India among 53 teachers of economics and social sciences from three universities showed that 64.2% of respondents used e-learning methods in practice. However, only 24.5% of participants use these methods 1-3 days a week, and 30.2% of participants use e-learning methods only once a month [3]. 100% of participants agreed that ICT is essential for education. When comparing the effectiveness of traditional and electronic education using a 5-point scale, survey participants recognized e-learning as more effective. Thus, as for ICT in e-learning, the importance was not only in the very fact of this model's existence but in the frequency of ICT use in the educational process.

In addition, Russian scholars point to the insufficient integration of Russian business education into the international educational field. Since it is innovation and business education nowadays that are the key conditions for the efficiency of entrepreneurial activity of any scale, for full development and successful competition of commercial companies, employees need constant updating of new globalization knowledge about modern business strategies and tactics. At the same time, there are few universities in the Russian Federation that offer students participation in full-fledged international exchange programs. As a consequence, economic education in the country requires significant improvements, taking into account global trends and opportunities [34-36].

A study performed in Indonesia among 100 teachers was aimed to evaluate the effectiveness of an e-learning strategy for an economics education program [5,37]. When evaluating the effectiveness of ICT use for economics students on a 4-level scale (very effective, quite effective, not effective, and very ineffective), 44% of teachers noted that e-learning was very effective, and another 50% of teachers considered it to be quite effective. For the program of economic education, the quality of teaching materials, the learning environment, methods of interaction with educational materials, and the activity of students were assessed. For all of these factors, teachers rated the quality above 70%. Interestingly, the positive results of ICT assessment by teachers generally coincided with the results of ICT assessment by students, which we obtained in this article.

Of interest for the analysis of the potential audience for postgraduate education is a study performed in Togliatti among 60 students of local universities, who are already receiving distance education using ICT [32,38]. The respondents included only two persons (3.4%), who started studying immediately after leaving school, and all the rest had secondary, higher, or incomplete higher education. Most of the students (54.9%) chose economic specialties, and the rest (45.1%) chose management and legal specialties. In addition, a study was performed in Togliatti among 1200 residents of the city. 34% of the total number of respondents would like to study remotely, and first of all, in economic specialties. Thus, economic specialties are leading in the Russian Federation among the preferences of citizens, who would like to receive higher education based on a distance model.

6. Conclusion

The study described in this article was performed in 2019 to analyze the effectiveness of blended education for economics students using ICT. The article described the following results. Three Russian universities (VSUES, KemSU, and RSREU) implemented ICT for a blended learning model in teaching economic disciplines. This made it possible to use the strengths of traditional classroom and distance electronic education, as well as to quickly correct the problems that arise at the initial stage of ICT implementation. For this, the existing educational and methodological base was supplemented with electronic educational materials, including both theoretical material in addition to the main part of classroom lectures, and interactive practical tasks related to solving economic problems using mathematical modeling software packages.

The field study enrolled 236 undergraduate economics students from three Russian universities (VSUES, KemSU, and RSREU), and 221 questionnaires were accepted for processing. The survey was performed at the end of the semester, during which students studied with partial use of electronic materials. The empirical data obtained confirmed the following hypotheses:

- H1: ICTs in the form of blended learning ensure student satisfaction with the learning process;
- H2: ICT allows theoretical learning materials to be presented in an understandable form for students;
- H3: ICT makes it possible to present practical learning tasks in a way that students can understand;
- H4: ICT in blended learning encourages students to make greater efforts to acquire new knowledge;
- H5: ICT in blended learning does not reduce academic performance.

At the same time, almost 80% of the surveyed students regarding H6 believe that blended learning opens for them the horizons of integration into international educational programs in the context of economic disciplines. The scientific novelty of the article lies in the fact that it analyzed the effectiveness of ICT introduction for the blended education of economics students and obtained new experimental data confirming the ICT effectiveness. The practical significance of the results obtained in the article lies in the fact that the proposed approach makes it possible to effectively implement ICT for the organization of blended education for economics students, combining the best features of traditional and electronic education. The current study promotes the active implementation of digital technologies in the educational process of higher education in Russia with the introduction of small technical and material resources. The results obtained can be used in teaching economic disciplines using ICT in SPE and HPE institutions. Future scholars in the field might consider incorporating free online courses (e.g., Coursera) into the science curriculum to enhance the skills of economics students.

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Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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