Assessment Methods in Blended Learning Environments

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Abstract. Currently, many institutions and universities are using a model of blended learning in the educational context. The model will therefore be properly promoted in the classroom, allowing students to accumulate knowledge and develop skills through innovations that can be compared to technological developments and research based on available data. Therefore, this article provides educational innovations in the evaluation process within the framework of a BL model to ensure active and interactive learning. The study carried out a bibliographic analysis of 200 scientific articles from the Scopus and web of Science databases, which made it possible to identify universities and countries with the constant relevance of this model of education and compare them with a database of these citations, articles, and their global impact. On the other hand, using the Likert scale, a survey was conducted on 40 teachers of different subjects and 390 students from elementary to high school. Questions were presented in the form of perceptual values with appropriate analysis of these learning models, technical resources, flexible curriculum, pre-class learning, autonomous learning, and the results and evaluation of future professional abilities. This will help to find the existing motives between them. This is a problem faced by all countries, and so far there are only partial empirical results. That is, this problem requires a special pedagogical understanding in the theoretical aspect (training is virtual, and evaluation is real) and generalization of the practical experience of different countries.

Keywords: Blended Learning, Educational Innovation, Educational Evaluation, Information and Communication Technology.

1. INTRODUCTION

Today, education does not have time to learn and know individual differences in the problem, has the opportunity to participate, and does not allow the initiative to be properly implemented. In traditional classrooms, students have fewer opportunities to think and practice, and as a result, students' abilities cannot be effectively developed. The main goal is to disseminate this new teaching model and apply it to education, to change the traditional learning process, and the classroom is transformed into a space of interaction between students and teachers, to respond to questions and to inform and discuss topics in order to achieve improvements in student learning.

The purpose of this article - to provide educational innovation in the evaluation process within the framework of a BL model in which the student must play an active role of collaborative and autonomous work in his learning process than taken in the traditional way, to implement methodologies and active technical tools to promote deep and meaningful learning in the classroom where he is the main actor of his own time for learning to solve questions and enhance knowledge in the classroom, to meet the diversity of the classroom, is more extensive and concise.

Teachers need to act as classroom organizers because they have extensive experience in education and the ability to use IT to create and manage learning resources in the absence of teachers. Thus, a blended learning is created by combining online learning knowledge with offline knowledge, where teachers assign independently organized past tasks in their time and progress with the help of appropriate teacher technology tools for learning until they reach their goals.

The teacher briefly reviewed the knowledge gained on the Internet, answered the questions of the students in the classroom, explained them, pointed out the difficulties. These questions are based on self-learning videos and assessment questionnaires in front of the class to help students detect their mistakes, better understand the subjects taught in the class, and think and raise awareness issues. Interaction between learners is the basic basis for the implementation of this educational model. To apply assessments in the classroom, teachers can group students according to their base and interests and allow the development of joint areas where the exchange of ideas should have taken place. They propose to follow their own methods and procedures, thus allowing us to study and look at it from different points of view, to reflect, discuss, and discover in-depth analysis and solutions to the problem. Another innovative strategy is that students can select or develop specific topics that can be used and applied based on the knowledge gained in the classroom [1, 2].

The introduction of BL methods has improved this process and facilitated interaction between learners and teachers by increasing motivation and building knowledge in an educational environment where students are responsible for learning [3].

A model of BL is a system of primary interest that expands the field by combining theories and tools from different fields and applying interdisciplinary and interdisciplinary solutions in practice.

The effectiveness of training when using composite model devices is significantly improved compared to traditional devices. Teachers seeking to move from passive learning to interactive learning to create new experimental classrooms should note that the current generation is strongly technology-oriented. Therefore, it is essential to use digital teachers, which are becoming so important in this field of education. It should be noted that students are accustomed to learning in class. Dramatic changes can negatively impede this, so teachers need to strive for proper pedagogy of traditional and digital participation in order to participate in meaningful question-based learning.

In developed countries, significant reforms in the curriculum and pedagogy are being carried out, various

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educational models that combine traditional tools and technologies are being introduced. In this situation, students are forced to use digital platforms for various purposes. While many educational institutions use BL tools such as MOOCs, simulators, webinars, and blogs, teachers and students have the opportunity to learn about these important changes in current and future generations.

However, the task that each of these countries provides for daily education improvement is to get the maximum benefit from the quality education provided to students. Incorporating technology into the BL model is considered the most effective and common method employed in education and can always benefit from the concept of effective and continuous learning [5, 6].

Learning and knowledge creation is a collaborative creative process involving emotional elements, social learning and self-education, and teachers should not be replaced by digital platforms because they need to be trained to be able to develop strategies that are effectively generated by teachers and that most effectively take into account the development of knowledge. This was to become a cost-effective tool that could lead students to higher-level applications and help teaching flexibility to adapt to these new and changing conditions [7].

Tutors must be trained and prepared using information and communication technology. This requires teachers to acquire digital skills to meet the students' needs, and to replace homework with interactive resources that allow students to use digital technology, use learning management systems, and combine classroom learning. These are tools that give easy and organized access to the digital resources that teachers have to prepare for their students, and require constant assistance from authorities in updating the methodology and necessary tools. Student engagement is important to implement this model of classroom learning because it provides benefits such as learning flexibility and mobility, and the ability to manage cognitive load [8]. This improves critical thinking skills and interaction with both content and peers, personal satisfaction, has a positive impact on psychological well-being and positively affects learners in the learning environment.

Digital technology is used by learners in the BL process to provide and gain experience outside the classroom where learners are responsible for their own studying and by doing so develop sustainable knowledge-based activities [9]. He will interact with teachers and come to contribute to what he is learning using collaborative and problem-based learning strategies. The teacher constantly evaluates the student to find his skills and abilities in this new field of study.

However, this model should continue to be reused and applied in practice to help learners maximize their academic performance. For the success of this approach, it is necessary to emphasize the importance of the role of teachers. Open communication between colleagues is needed to express an opinion on the application of this learning model in the classroom and to clarify that failures and perfectionism can occur. It is important to regularly experience failures and risks. Teaching methods should be adjusted so that the teacher can self-critique [10] if he sees that something is not working and starts doing exercises or new reviews that contribute to better learning, he must acknowledge the role of a student performance facilitator and evaluator.

Thus, carefully selected and developed instructions to support face-to-face and online learning are provided in an online environment. Students should always be analyzed to determine their preferences, characteristics, learning environment and learning style, and plan and develop strategies to help build and develop thinking in the classroom. There are many reasons to implement this model in the classroom, and there are 2 important reasons to implement this concept. The learning experience should be enhanced and optimized as a new support for learning through technology and easy access to it, and therefore the teaching process, both student and teacher, should be improved [2,11].

This article is structured as follows: Works related to research are described in Section 2. The problem statement is shown in Section 3. The analysis of the results is shown in section 4. Finally, Section 5 provides some conclusions.

2. RELATED FUNCTIONS

Teachers pass on knowledge to many students who turn into passive receivers because they only see and hear. This approach can be practical due to materials presented in a fast-paced manner, but it has many limitations, all students are treated equally with limited training, and their reactions are often the same [12].

Since active learning teachers are involved in this model, active participation in classes and student contributions to the evaluation of initial knowledge, as well as various teaching strategies are used by teachers and are also collaborative, cooperative and problem-oriented [9]. In the opposite form, the structure already exists, for example, a daily survey of low fees, the student is responsible for the work done outside the classroom [13].

Advances in technology in a synchronous environment have benefited students in terms of flexibility, interaction between participants, exchange of knowledge, experience, and real-time feedback between tutors and learners [14]. Different types of classrooms can be built, and a combination of existing relationships with synchronous cyber classrooms, electronic whiteboards, interactive feedback systems, and BL models is also possible [12].

Within the framework of education, autonomous education based on the individual needs of students and independent construction of knowledge with the help of online resources, but also in the classroom, students individually discuss, communicate and exchange ideas, as well as mixed Moe learning.

Much attention has been paid to the student's experience in the educational process that meets the needs of students of different educational levels and actually helps teachers [14].

Communication and Information Technology or open online courses can enter the education ecosystem, leading the future of globalized education with the help of these educational models.

However, this change requires teachers to be classroom leaders who must have areas of professional knowledge and ability to evaluate that play an important role in education in order to recognize the development and skills acquired by students.

All the changes and problems proposed by these authors are reflected in the requirements of universities adopting this model, as the recent achievements given by these models in education are numerous and represent significant added value for students using a variety of technical tools that greatly help them to acquire new knowledge [15].

There are many countries that are using modern learning models that are effective teaching and learning processes. On the other hand, the technical resources used in the classroom do not always become the best for students. Among them are some weaknesses that these learning models accept in many countries because of connectivity, the quality of video, the treatment of students who come to class without seeing such resources, and the possibility of asking questions while watching videos and not receiving direct answers [10].

Teachers were able to confirm their knowledge through various forms of evaluation: experiments, games, online education, reading, research groups, feedback will be successfully conducted in groups, students must immediately assess whether these models are effective or not. Interaction in the classroom is a big difference from the problems introduced in the educational environment because they show enthusiasm, an attitude to learning and participation, and therefore implement it more efficiently [16].

The analysis shows that this educational model is used in private institutions with a small number of students because they have innovative digital tools and teacher and student training as well as universities, where students are responsible for developing their own independent learning and lifelong learning skills, so learning using cyber tech benefits students in terms of both flexibility and mobility. Thanks to this model, students received the so-called "new normal" in education.

Figure 1 shows the methodological process required to perform bibliographic analysis, which can reduce the risk of the process of empirical research in the field of education, in particular evaluation using blended learning models.
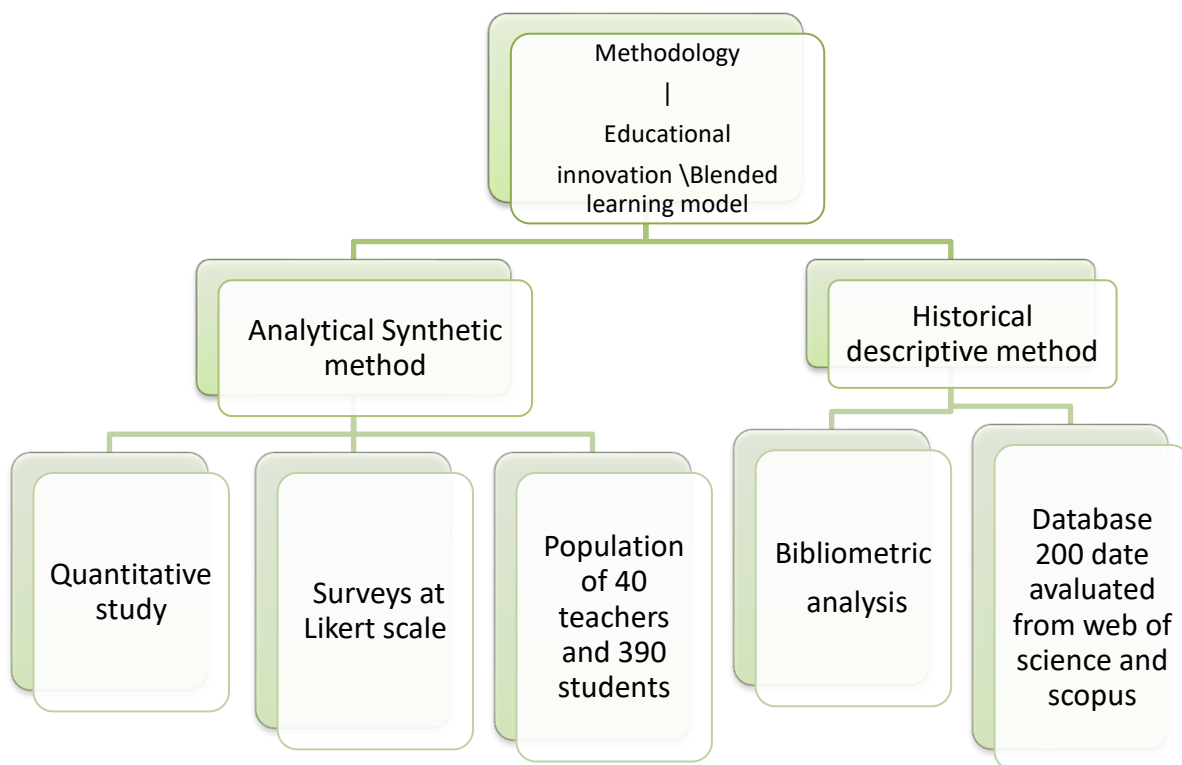

**Figure 1:** Methodological process.

Meanwhile, the educational community is increasingly under pressure to undergo changes that help flexible solutions that support learning goals provide students with new activities, increase opportunities to learn in an enthusiastic classroom, and enhance students' lifelong digital knowledge and skills.

The learning process is context, and this is a matter of review due to the importance of the teacher. He must be trained in the use, management and application of subsequent instruction in the classroom, which means that he/she is a strong teacher of the 21st century, able to develop the skills, abilities and knowledge needed to perform certain actions.
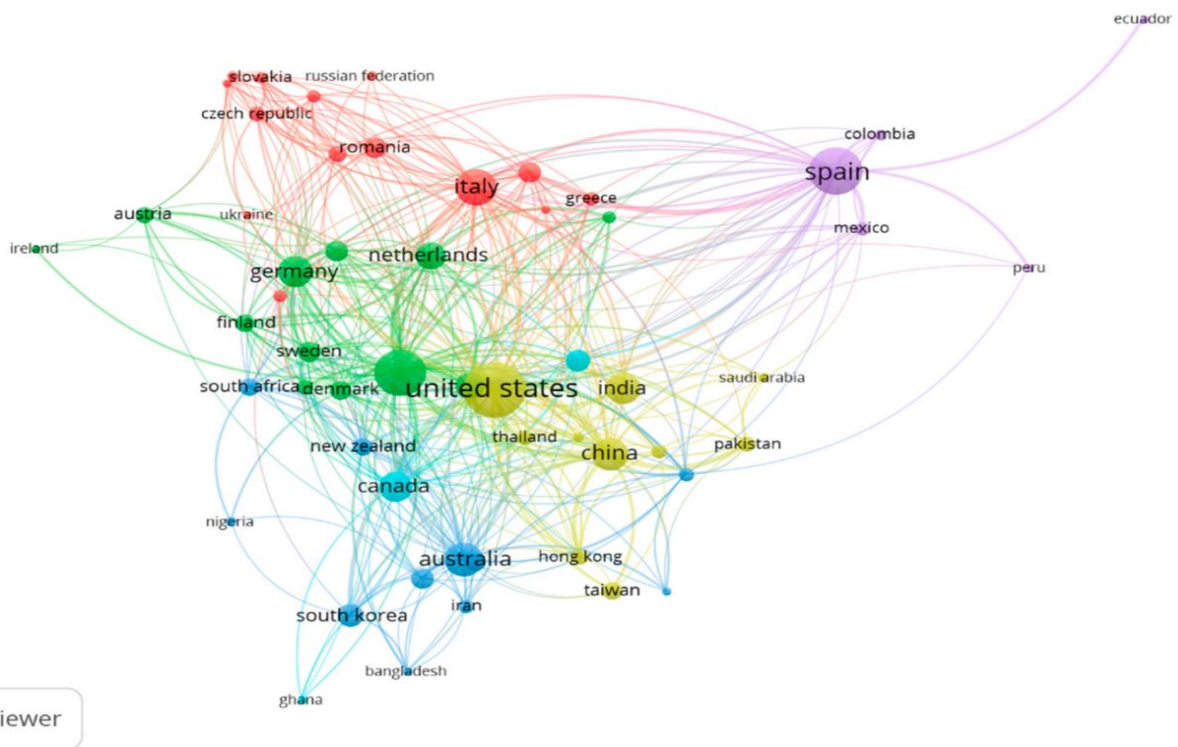
Figure 2 shows that the United States is one of the countries where most research is conducted.1If you compare these graphs, you can see that in the first database there are countries being studied in this area, as well

as countries such as China, Spain and Australia.
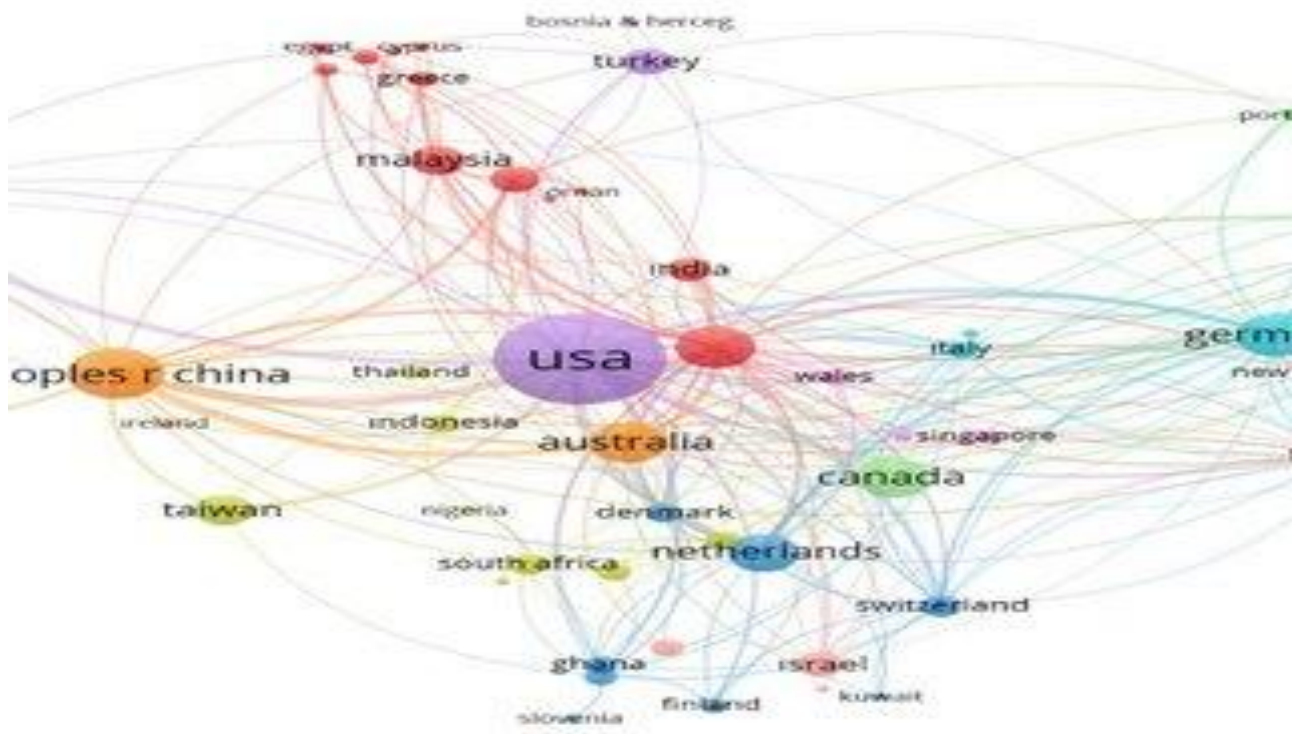
Web of Science Data – Countries

Scopus Data- Countries

Figure 2: Bibliometric analysis: A network map showing the relations between different countries in mixed learning and education. Web of Science and Scopus.

In these countries, there are ways in which there is creativity in the field of education, which promotes a better learning experience and leads to an active accumulation of knowledge. These universities have sought to create the role of growth and evolution in the development of learning.

This form of education in higher countries is the first time that a new type of activity, flexible and to some extent free, is understood so that students can choose their own projects and have the opportunity to gain and improve knowledge. This determines that the teacher not only provides knowledge, but also acts as a training assistant [17].

3. PROBLEM STATEMENT AND METHODOLOGY

Today's education is based on traditional schools, where teachers use passive and outdated methods. But students do not need to interact properly in the classroom. Because of this, the educational process of learning is longer and takes longer than even their opinion is recommended.

In Figure 3, by introducing educational innovation in the classroom, new forms of blended learning, interactive learning are formed as the main points of motivation for both students and teachers, knowledge creation is developed using methods of explanation and historical synthesis, the learning process is optimized, and with the help of surveys conducted using the Likert scale. A new ideology of the role of teachers and students is given, an assessment process that represents a positive cause and effect in the classroom. Through an ongoing evaluation process, such as oral lesson questionnaires, game projects, etc., to ensure that students need to be deep in the classroom and engage in creativity and stable learning outcomes.
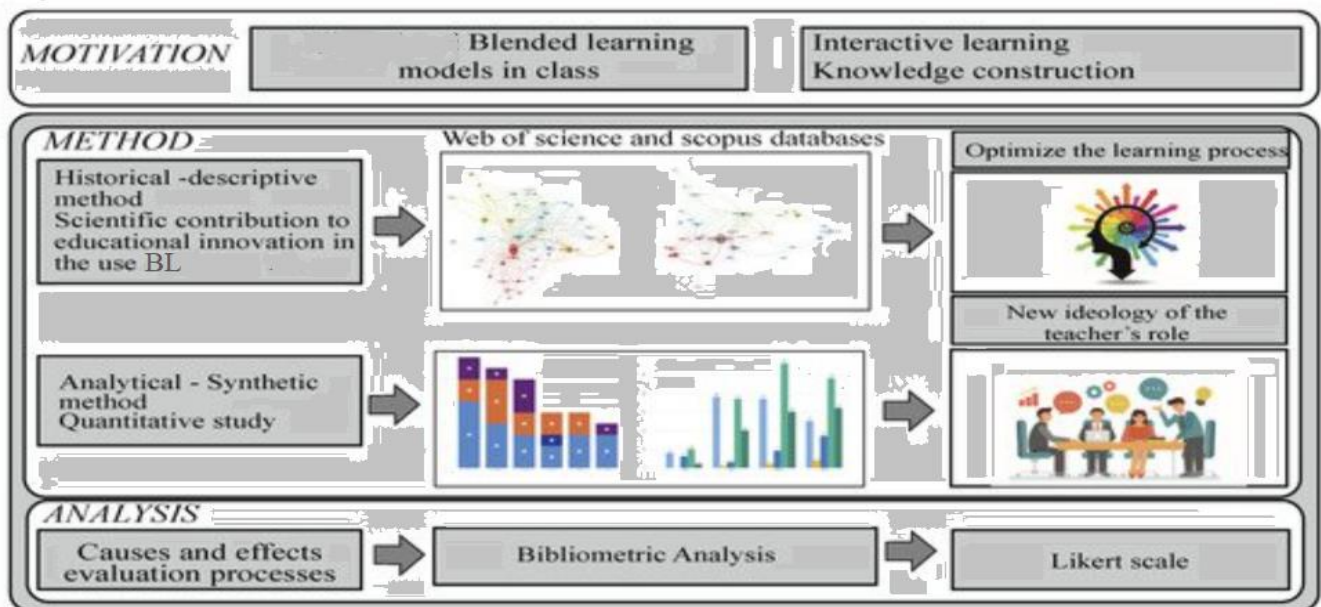
Figure 3: Educational innovations in the assessment process within the framework of the blended learning model

The Web of Science and the Scopus database are rated as the largest and most important sources. The data for the past 10 years has been evaluated using specific keywords such as innovative research. The assessment allows you to find out how often these learning patterns are used in the field.

These experts who have resulted in the use of these new strategies in the classroom are responsible for the implementation of these strategies.

Biometric analysis is a study from an important database in the country, universities and authors are clearly evolving, providing up-to-date information on the current state of these fields of knowledge, so they know the criteria for this study and show that blended learning models have made great discoveries in the development of skills, competencies and competencies in different areas of education. We have achieved results that affect the methods used in this study. It aims to discover and examine the impact of students and teachers on education improvement and innovation.

The modern world has become a wonderful place where various technologies appear, which have become an important part of education in all fields. The use of technology tools has led to innovations in education and learning in most influential countries, showing off knowledge every day with the help of increased resources and new methods [18].
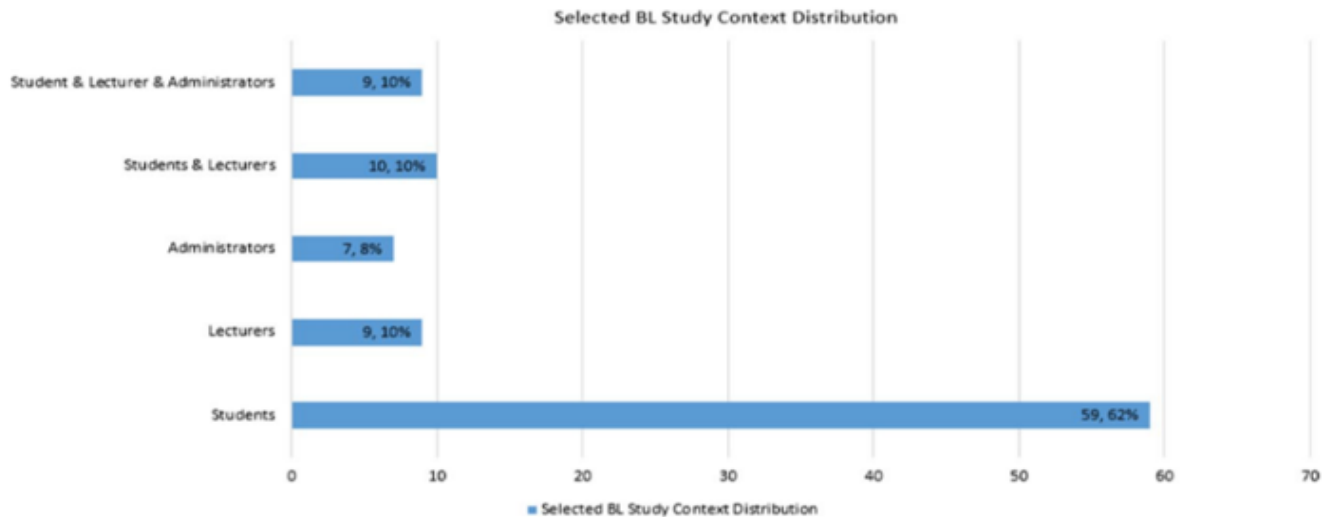
Students' critical thinking skills are considered a basic educational goal, where research training is used to be independent problem-solving experts and to use a mixed classroom learning model without inconvenience.

Active learning of students contributes to the achievement of higher education by solving the responsibilities and efforts of students, and also requires the training of teachers. Education systems in many countries have developed innovative technologies, ICT, teaching materials, virtual platforms, game play, and many other technologies in line with the needs of students and teachers to achieve significant progress.

Technological innovation not only introduces new technologies into the educational process, but also plays a fundamental role through strategies that lead to cooperation with the media, expansion of educational space, development of new educational media, professional teachers, review of learning goals, and identification of evolutionary indicators in development. Countries with less impact need to use more effective strategies to help.

Several studies have been conducted to study the introduction of BL in higher education.

Taking into account the context of the selected study, the distribution of the introduction of BL in the higher education system, the results shown in Figure 4 (N=59,62%) show that this study studied the adoption of BL mainly taking into account the perspective of the students. This conclusion is consistent with the results of a previous study [19] that advocated the need to develop models to measure student satisfaction, perception, sense of purpose [16], and effectiveness [18]. Also the results obtained in the figure. As shown in Figure 4, (N=9.10%) indicates that we are mainly studying the introduction of blended learning taking into account the teacher's perspective. This conclusion is very consistent with the results of the literature, and the authors referred to the need for research to study the current level of implementation of BL among scholars to identify the factors influencing the introduction of blended learning.

Selected BL Study Context Distribution

Category	Value
Student & Lecturer & Administrators	9, 10%
Students & Lecturers	10, 10%
Administrators	7, 8%
Lecturers	9, 10%
Students	59, 62%

■ Selected BL Study Context Distribution

Figure 4: Distribution of selected Blended Learning studies context.

The study was based on quantitative studies to collect opinions on the usefulness of the methodology. During its construction, didactic resources, strategies and technologies are evaluated. Therefore, in order to get more clearly the opinions and ratings of respondents, who she is trying to measure their attitude to a given topic, the Likert scale, a kind of ordinal scale, was used.

To this end, a survey was created with 26 questions, including useful data on technical tools, the use of information and communication technologies, the use of mixed learning models in the classroom, the acquisition of new knowledge, the virtual environment, formative assessment, feedback, autonomous learning and active participation. The respondent had to express the degree of consent or disagreement.

The survey was conducted online among 3rd to 11th grade students in middle school and college students. 3 parallel studies were conducted for each class with the participation of 390 students and 40 teachers of various subjects of the educational institution.

Characteristics of students used: the total time spent reviewing technical resources, classes, homework, grades, and time spent on each effort will allow students to know the skills they have mastered. It is equally important to monitor the working conditions of classmates and the coefficient of interest in lessons.

Updating the concept of teacher evaluation has become necessary for its attitude, preparation, content, methods and means of improving the effectiveness of teaching, which will be an essential basis for the application of these models in the classroom and for the initial acquisition and construction of this knowledge.

Evaluation has always been considered an important element of the overall dynamics of cooperation. Feedback is an important strategy for the intelligent construction of thinking when acquiring new skills in a virtual environment and must be considered in the context of learning, situation and timing.

Because good learning is necessary, research should always be developed and involve students with physical and cognitive disabilities [20]. Before the lesson, new technical tools will be needed, and then special resources for this group of individual assessments will be provided from these students to know the progress.

According to the Likert scale, mainly within the framework of the applied survey, according to the answers of students and teachers, to understand the opinions of students and the necessary information, this study is based on the results of the study.

4. ANALYSIS OF THE RESULTS

After the data collection tools were applied, the information they give indicates the conclusions made as a result of the study, so we began to analyze them.

Using the online survey, the results obtained for 390 students from grade 3 to 11 in secondary schools and at college, as well as 40 teachers of various subjects, show the questions presented to the values of perception.

In accordance with the Likert scale for 1-9 questions, she received consent and consent in the survey, with 59 percent as the most significant in the use of digital resources, interactive games, virtual platforms, videos for the

development and creation of knowledge among students. Most of the students' answers come from countries such as Italy, Germany, Greece, the United Kingdom and Australia. On the other hand, a percentage of 21 students agree that the teacher should send the material before the start of classes in order to better understand the topic being considered in class and be able to fulfill the three points required by the model of blended learning. Most of the answers are from countries such as Azerbaijan and the Dominican Republic, where teachers can better understand the topics being considered in the class and meet the three points required in the blended learning model.

On the other hand, in Question 35, answered by 10 students, we fully agree that teachers have mastered a new way of teaching that they are accustomed to passively taking lessons, and in the model of mixed learning, changes can give good results because exemplary students become autonomous and teachers are their guides.

In Question 11, 31 percent of students did not make a decision about choosing a virtual classroom through the platform because this environment is complex due to lack of Internet at home or unstable connectivity. The most important thing is that the student does not fully understand the actions sent directly on the virtual platform or with the teacher in the classroom. There is agreement and agreement on the issue, the full agreement on Question 12, but 34 students believe that the task set by the teacher is accurate when sending home.

In Question 14, projects and assignments sent by teachers were not interesting to students, so 29% of students were undecided, so they have traditionally been passively executed without gaining new and innovative knowledge. But, according to students, they have no problems with learning and gaining new knowledge from teachers in class time and subjects.

Similarly, in Question 16, students are motivated in class to understand new topics, with 28% agreeing and always using the help of their guides. The guide will always be a teacher. And as they represent 28% of indecision with innovative technology to know the student's progress for their motivation and learning, students are encouraged to learn more about how teachers can help them in the classroom.

The YouTube platform for students discussed in Question 19 is innovative in the development of knowledge acquired before the topic is considered in the classroom, with 44% fully agreeing, but when reviewing Question 20, 28% completely disagree. Students believe that without a teacher nearby, they cannot study the topic simply by browsing the internet or youtube. We also note that, unfortunately, in many countries, such as Azerbaijan, platforms such as YouTube are blocked. Finally, in Question 22, students were undecided about their knowledge of 3 aspects of the use of BL: 22 percent agree, and the other the same value - completely disagree.

According to the Likert scale, it determines the problems presented to the value of perception by teachers and has a high percentage of 50 in the use of technical tools, educational innovation, knowledge acquisition, ICT use, new learning models, problems related to learning. Courses, development of events using innovative digital tools, collaboration, face-to-face meetings and blended learning through technology, evaluation methods, autonomous student learning, active participation, skills and competency updates, youtube skills, professional orientation flexible curriculum.

At a rate of 40-50 percent, teachers require the use of a new virtual environment of the subject. They believe that students will be motivated by new learning models and new attitudes will be achieved in the classroom. Similarly, the acquisition of a new learning model, in which students are active rather than passive subjects and receive constant evaluation and feedback from teachers, is considered that formative evaluation using rubric increases the burden on teachers.

Figure 5 shows a comparison of the teacher's use of technical resources in the classroom where this can be observed with the age group of students aged 7-8 to 8-19 years of age and older. Across all age groups, I fully agree and agree that teachers need to use innovative technology tools in the classroom to increase students' new knowledge and develop new skills in each subject.
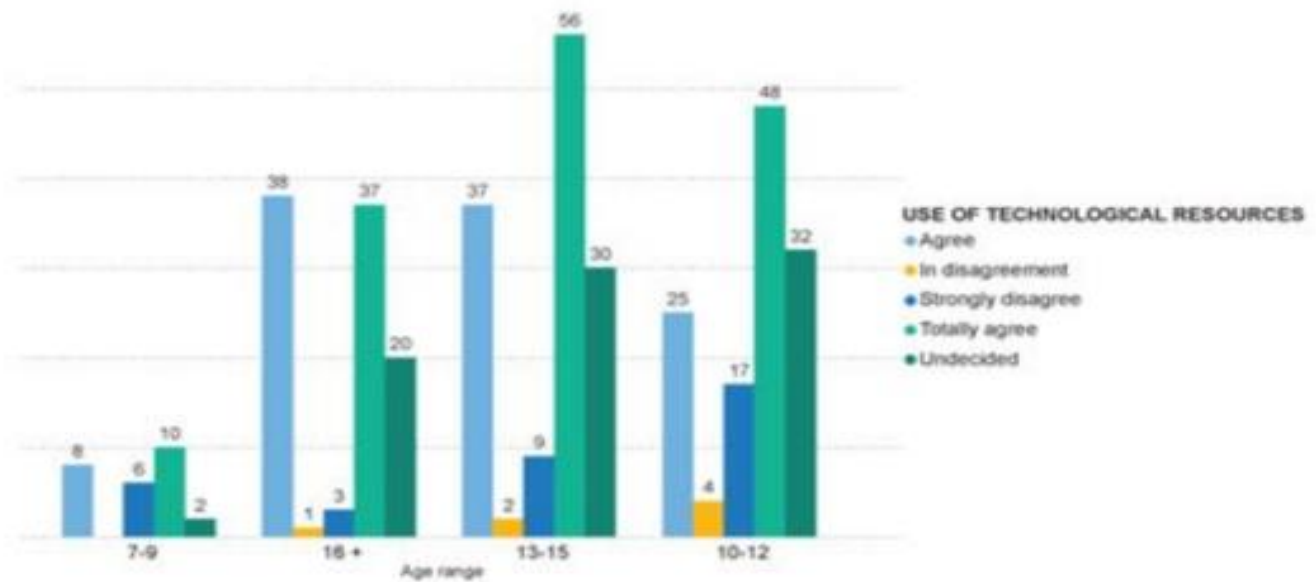
(a) Age range vs. Use of technological resources

Figure 6:

Figure 6 shows a comparison with the educational level of primary, secondary and high schools of the educational institution, and it can be observed that students who do not fully agree think that they can not study autonomously using the Internet or youtube without the accompaniment of the teacher, who is a guide, while students who compare with the educational level fully agree and consider the subject to be considered before the lesson with the teacher We hope to gain more knowledge about this topic. The use of BL will be the best option for the educational model of the educational institution, since the student is ready to use the 3 points that this model entails in the classroom, becomes autonomous in learning and the teacher will be his guide.
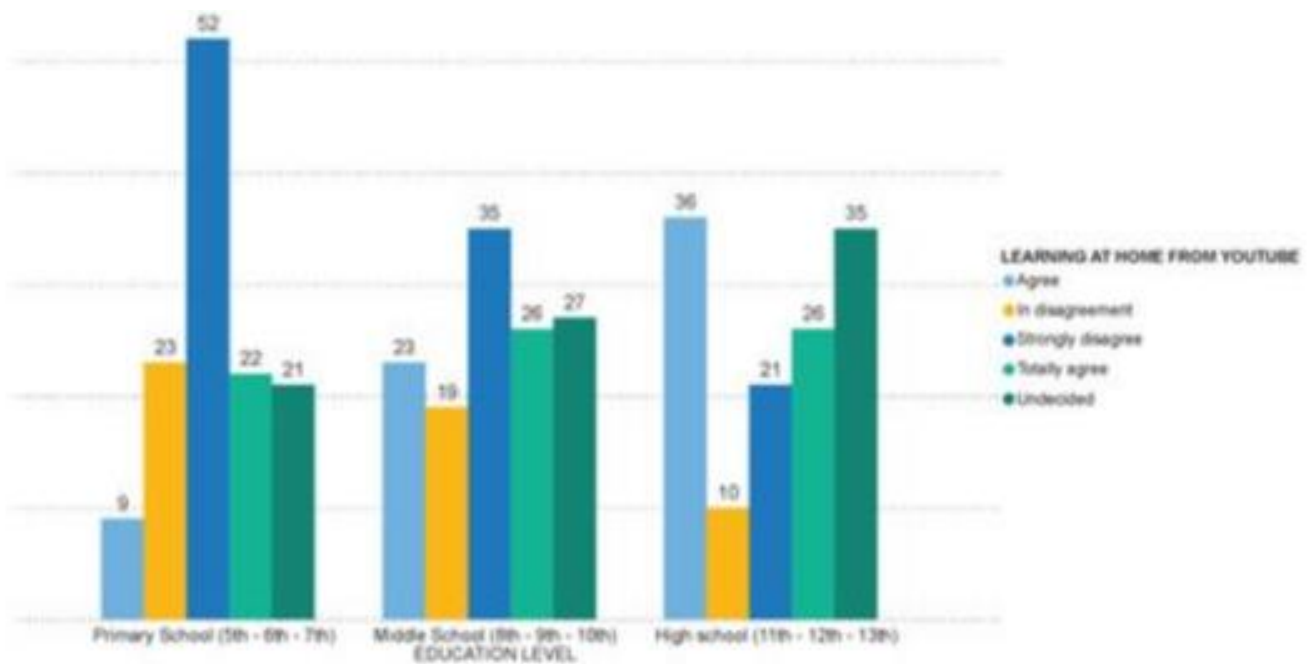
(a) Education level vs. Learning at home from YouTube

Figure 7:

Figure 7 shows a comparison of the age range of teachers in educational institutions aged 25 to 50 years and older, which considers the importance of learner autonomy in the learning process, and the tutor is their guardian, which helps to navigate and motivate students to perform tasks, projects and actions in the classroom. On the other hand, it develops self-assessment strategies that gain confidence in abilities and skills and lead to self-assessment, which helps students learn about the development and efforts they have made autonomously to develop knowledge, especially while another teacher group provides an indecisive answer.
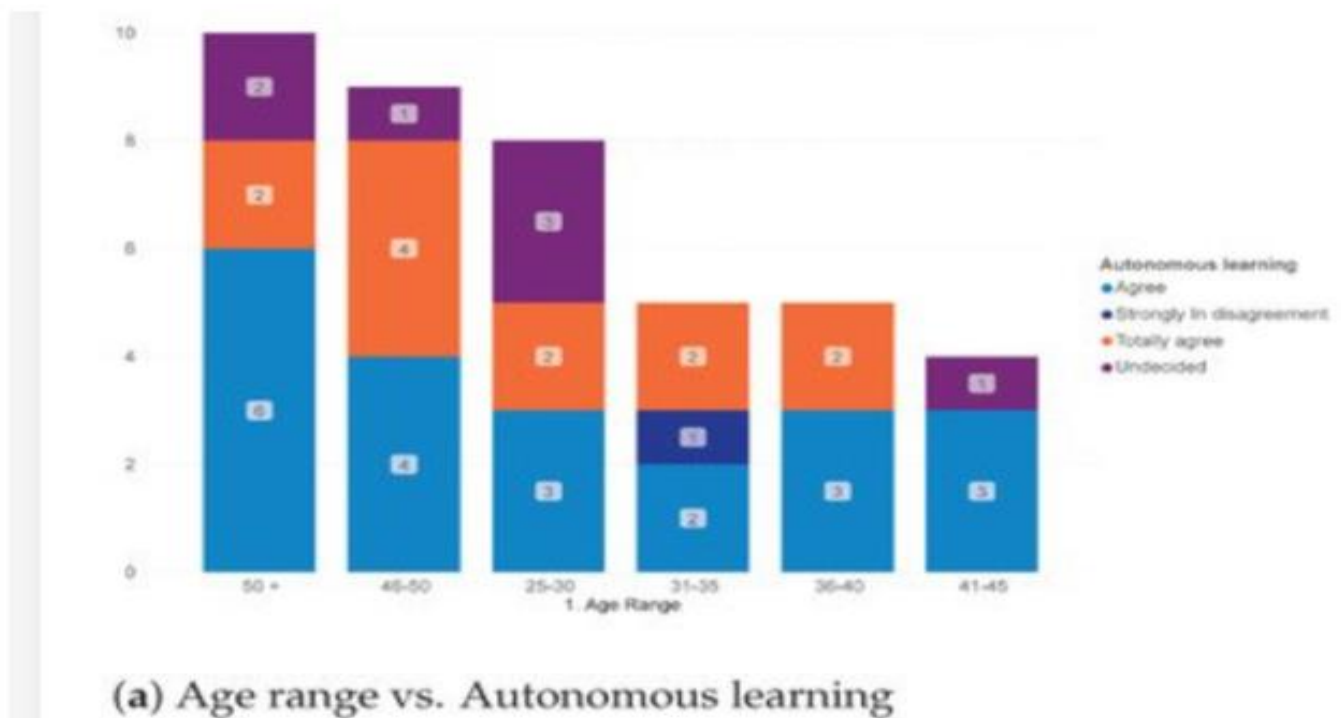
(a) Age range vs. Autonomous learning

Figure 8:

5. CONCLUSION

This study aims to provide educational innovation in the evaluation process in a mixed learning model. From the results obtained in accordance with the conducted research, it can be concluded that in order to significantly increase the educational process, students need the introduction of technical resources in various subjects, assessments, feedback and development in the classroom, and students need to expand the capacity of their knowledge. On the other hand, future generations should be encouraged to introduce competency-developing activities, new forms of assessment, including emotional intelligence, collaborative and autonomous work that takes multiple intelligence into account, and above all, the use of ICT to introduce positive methodologies that give students a leading role and leave the so-called "traditional schools". This article shows the relationship between face-to-face learning scenarios and mixed learning models in synchronous learning scenarios. The use of this new learning model in the classroom is because it is known to be synchronous when learning is based on problems, practices, and discussions. However, by using this model face-to-face and synchronously linked in the classroom, students' abilities are developed using technical tools in two areas of learning, making their learning more flexible and active. Another important point of view is the interconnection of educational innovation within the framework of a blended model, a form of learning that combines face-to-face and distance learning tools and resources to improve the student experience and the learning process that runs remotely.

Finally, the blended learning model is used in some countries and universities to improve the competencies, skills and abilities of their students, which emphasizes the importance of using innovative technological resources in these scenarios, both full-time and distance.

Thus, understanding the experience of different countries made it possible to identify common features of assessment in blended learning. Expert evaluation of practical tasks requires special attention (theoretical and methodological attention) in order to assess it was objective and reliable, especially during a pandemic. It is necessary to conduct practical classes on a large number of academic subjects, therefore, the teacher must be able to evaluate them, and evaluate not only the final result, but also the process of performing such tasks, taking into account behavioral and personal characteristics. But how can this be done valid and reliably with virtual learning? This is a problem faced by all countries, and so far there are only partial empirical results.

That is, this problem requires a special pedagogical understanding in the theoretical aspect (training is virtual, and evaluation is real) and generalization of the practical experience of different countries. Today, teachers play a leading role in shaping the use of students' digital tools and optimizing the educational benefits of their digital experience. They are also agents of inclusive, equitable education and messengers of diversity as an enriching element of our societies. To fulfil these roles, teachers must be experts in teaching and learning and base their practice on specialized and updated knowledge.

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