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SUMARIO • SUMMARY • RESUMO

Editorial

The year 2023 is a new challenge for the journal, which already has ten articles in each issue, which means that more and more authors are choosing our publication to present the results of their research, with a significant increase in the number of manuscripts received. This entails more work for the Editorial Team, especially the associate editors and reviewers, and it is only fair to acknowledge their important work here. Likewise, the secretariat, a fundamental part in the correct development of all phases of the editorial process, is increasing its work, something that should be reflected here.

Issue number 1, corresponding to this volume 7, focuses on a wide range of topics. It begins with a timely study on climate change and the relevance that education can have on it. Its objective was to develop an education program for high school students in order to evaluate the mitigation potential it may have. The program was applied to first year high school students in a private institution and evaluated through surveys and observations. The results showed that attitudes towards climate change improved, that students began to develop more mitigation habits and demonstrated more awareness and interest in applying them in the future.

Another group of contributions are those based on technologies. In the implementation strategy of B-learning in the Telecommunications Engineering career, we worked qualitatively with several samples of graduates, employers and academic managers at the UNED of Costa Rica. It was demonstrated that B-learning can be applied in engineering careers, and the strategy provides the planning to achieve AAPIA accreditation from CFIA, being an example framework that other engineering careers can use. In turn, the study on the virtual forum as a driver of the learning experience analyzes the gaps of this application in master's degree students at the Graduate School of the Universidad Tecnológica del Perú (UTP). It shows how it is possible to identify opportunities for improvement in the use of the virtual forum as a driver of the learning experience and to assess its impact on educational social interaction.

On a different level is the study aimed at determining an effective communication model for the dissemination of Public Investment Programs and Projects (PIP) of the Department of Loreto in Peru. This quantitative study revealed that there are important limitations in the current model of PIP dissemination and finally proposed an Effective Communication Model. Along with this study, another study is presented related to the communicative competencies in English in a sample of incoming university students. These are compared according to sociodemographic and academic characteristics. It is concluded that it is necessary to intervene in the communicative competencies of oral production and comprehension in this type of students and to strengthen written and general comprehension, as well as different components of grammar.

Research based on learning is a block of great interest. Such as the one carried out to analyze the exit profile of the Ecuadorian high school, with a look at the project-based learning method, in which it is concluded that this is an alternative to raise the educational process of the country (Ecuador), while facilitating harmonious coexistence in the school framework for those who use it. Similarly, another study analyzes academic performance and self-regulation of learning in Colombian high school students. Using a mixed medotology reveals a low mastery of fundamental competencies for the acquisition of basic skills, that the use of cognitive strategies and academic performance favors students

with higher and high value judgments develop more motivating and autonomous modes of involvement, which correlates with successful academic performance. The study on learning styles is also about academic performance, in this case in Peruvian business and administration students. The style that stands out the most is theoretical and no relationship is found between learning style and gender or study cycle, but there is a relationship between learning styles and academic performance.

The study on the development of oral production through large group pedagogy and the implementation of ICT tools at the National Autonomous University of Honduras is focused on a different line. It is an action research in which strategies for the development of oral skills and interaction in large group pedagogy are carried out. It is evident that not only can oral production be worked on inside the classroom, but also outside the classroom with the guided and didactic use of technological tools for language teaching.

Finally, it addresses critical thinking, diversity and interculturality: essential interrelationship in the English as a foreign language classroom, an investigation based on a systematic review and the identification of the low social impact of English classes.

Antonio Pantoja Vallejo
Editor Jefe / Editor in chief / Editor Chefe

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CLIMATE CHANGE EDUCATION AS A TOOL FOR MITIGATION

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Abstract. The data provided by the assessment reports of the Intergovernmental Panel on Climate Change (IPCC) leave no doubt about the climate crisis facing the planet and humanity as part of it. This is why it is essential to take climate change mitigation measures to curb this crisis. One of the mitigation measures with great potential for change is Climate Change Education, so it is important to evaluate its mitigation potential. In Uruguay there is no research related to Climate Change Education specifically, but there is some research related to Environmental Education, although not in a systematic way. The objective of this research was to develop a Climate Change Education program for high school students in order to assess the mitigation potential of climate change. For this purpose, the program was applied to first year high school students in a private institution and changes in attitudes and mitigation habits before and after the application of the program were evaluated through surveys and observations. The results showed that attitudes towards climate change improved and students began to develop more mitigation habits and demonstrated more awareness and interest in applying them in the future. This is evidence that a Climate Change Education program can be beneficial to promote climate change mitigation, so it is important to deepen research in this field using different methodologies.

Key words: Climate change, mitigation, climate change education, environment, Uruguay

LA EDUCACIÓN PARA EL CAMBIO CLIMÁTICO COMO HERRAMIENTA DE MITIGACIÓN

Resumen. Los datos proporcionados por los informes de evaluación del Grupo Intergubernamental de Expertos sobre el Cambio Climático (IPCC) no dejan dudas sobre la crisis climática que enfrenta el planeta y la humanidad como parte de este. Es por esto que se vuelve esencial tomar medidas de mitigación del cambio climático para frenar esta crisis. Una de las medidas de mitigación que se presenta con grandes posibilidades de cambio es la Educación para el Cambio Climático, por lo que es importante evaluar sus posibilidades de mitigación. En Uruguay no hay investigaciones relacionadas con la Educación para el Cambio Climático específicamente, sino algunas relativas a la Educación Ambiental, aunque no de manera sistemática. Esta investigación tuvo como objetivo desarrollar un programa de Educación para el Cambio Climático para alumnos de secundaria con el fin de evaluar el potencial de mitigación que este puede tener. Para esto se aplicó el programa en alumnos de 1º año de secundaria en una institución privada y se evaluaron mediante encuestas y observaciones los cambios de actitudes y hábitos de mitigación antes y después de la aplicación del mismo. Los resultados mostraron que las actitudes hacia el cambio climático mejoraron y los alumnos comenzaron a desarrollar más hábitos de mitigación y demostraron más conciencia e interés en aplicarlos a futuro. Esto evidencia que un programa de Educación para el Cambio Climático puede ser beneficioso para promover la mitigación del cambio climático, por lo que es importante profundizar la investigación en este campo utilizando distintas metodologías.

Palabras clave: Cambio climático, mitigación, educación para el cambio climático, ambiente, Uruguay

Introduction

The first part of the IPCC's Sixth Assessment Report on climate change published in mid-2021 leaves no doubt as to the climate emergency situation. It is unequivocally stated that human activity is directly related to climate change (changes in the atmosphere, oceans, cryosphere and biosphere) and the increase in the concentration of greenhouse gases since 1750, and that humans are one of the main precursors of climate change. It is also suggested that without significant GHG reductions, future scenarios are very unpromising (IPCC, 2021). Therefore, climate change mitigation is an urgent issue in order to preserve living conditions on the planet.

According to Cordero et al. (2020), there are several actions that can be taken to reduce GHG emissions, such as the use of clean energy, reforestation, the use of electric vehicles, energy efficiency in households and climate change education. According to the authors, the latter is one of the measures that can have a major impact on mitigation.

Although different actions have been taken in Uruguay to commit to avoid and ameliorate the causes of climate change, a report conducted by UNEP-REGATTA (n.d.) and another report published by Ludeña and Ryfisch (2015) for the IDB indicate that mitigation is not a priority line of action for the country.

Regarding climate change education in Uruguay, although there are some lines of work that propose environmental education (in a more general way) in the country and there is a National Environmental Education Plan, this does not include climate change education and at present it has not been systematically implemented, despite the fact that the plan was developed in 2014.

Likewise, UNESCO (2011) points out that climate change education is a tool to address the issue and help mitigate the effects of climate change by educating citizens who are sensitive and aware of the role they play in mitigation. In view of the fact that scientific reports are conclusive about the role of human activity in the current climate crisis, it is essential to learn how to change living and consumption habits to reduce GHG emissions.

It is for these reasons that this project investigates the influence of Climate Change Education (CCE) on mitigation through a curriculum in order to promote mitigation and serve as an initial study for future research in the area of mitigation through CCE.

A project of this type can be beneficial because all the knowledge related to climate change helps people, in this case younger people, to be able to face the consequences of climate change and make decisions that allow them to be a mitigating factor. It can also serve as an adaptation tool that allows young people to have resources to address the causes of the climate crisis.

There are different works that have been carried out in Latin America and other parts of the world that were used as a reference for the creation of the education program for climate change and that show the relevance of the study of the subject. An important work regarding the collection of information on education for climate change mitigation in Latin America is that carried out by N. Cruz and P. Páramo in 2020, which derives from a doctoral thesis focused on the issue of climate change assessments in university students. As Cruz and Páramo (2020, p. 483) reflect:

> It is noteworthy that most of the papers do not evaluate the effectiveness of interventions on direct behavioral change and that descriptive articles are still predominant, although it is recognized that they are the baseline that opens the door to intervention or experimental studies.

This points to the need to develop more experimental studies that can show some relationship of how social representations and perception change after applying different methods and interventions, which is one of the objectives of this project.

Another important work regarding the relevance of climate change education on people's attitudes and perceptions is the one conducted by A. González Ordóñez in 2016. The results obtained after the application of the program are of great importance as a basis for the development of the unit to be applied with the sample in this final project. According to González Ordóñez (2016), after the application of the program, it was possible to notice in adolescents more knowledge about climate change and interest in the subject, more environmental awareness, more interest in sharing information within the closest circle, and as far as mitigation is concerned, they showed more interest in participating in workshops and actions to mitigate climate change.

In relation to studies conducted in other parts of the world outside Latin America, one of the surveys applied in the research is the "Climate Change Attitudes Survey" which measures the beliefs and intentions of high school students to promote positive environmental change in the United States. This climate change attitudes survey developed by R. Christensen and G. Knezek during 2014 and 2015 measures students' beliefs and intentions regarding the environment with a specific focus related to climate change. According to Christensen and Knezek (2015), one of the main objectives of this survey is to fill a gap in the measurement of high school students' affective responses to the environment and climate change. This instrument is useful for assessing changes in attitude before and after an intervention, so it is of great relevance to this research and is used as a measurement tool.

Regarding the identification of effective climate change education strategies, Monroe et al. (2017) conducted a systematic review of research in countries in Europe, Asia, and North America. According to the review by Monroe et al. (2017), the characteristics of successful climate change education programs are that they focus on making climate change information personally relevant and meaningful to students, and that educational activities or interventions are designed to actively engage students. Other important strategies that could be identified are that educators used deliberative discussion to help students better understand their own knowledge and other people's views on climate change; students had the opportunity to interact with scientists and specialists; programs included discussions about climate misconceptions; and students participated in the design and implementation of community projects to address a climate change issue. These aspects are taken into account for the implementation of the program.

The general objective of this project is to implement a mitigation-oriented climate change education program in a group of adolescents in the first year of secondary school in an educational institution in Montevideo, Uruguay.

The specific objectives are as follows:

- Create a climate change education program for 1st year high school students
- Implement a climate change education program for students in the 1st year of secondary school
- Describe climate change mitigation practices and attitudes towards climate change applied by students before and after the program

- To assess changes in students' attitudes and behaviors related to climate change and its mitigation.

Method

Research design

The research conducted was qualitative in nature with an action research approach in order to be able to describe climate change mitigation practices and attitudes towards climate change applied by students before and after the program and to evaluate these changes in attitudes in order to understand the relationship between climate change education (CCME) in high school students and behaviors and attitudes towards mitigation. This research allowed the approach of the problem from the educational community by applying an intervention that allowed a deep observation of the dynamics of the students with respect to climate change.

A qualitative type of research was chosen. Although data were collected in terms of attitudes, before and after the intervention, which are compared numerically, the focus was not placed on quantities in order to extrapolate objective data to other realities, but in order to understand the subjective reality and the processes that occurred during the intervention.

The research design applied was that of action research within the intervention, since it seeks to promote a change in a reality. In this case, we sought to generate a change in attitudes and behaviors related to climate change mitigation within the framework of the EpCC. The intervention carried out was a pedagogical intervention.

The cut of the research was longitudinal since changes in behavior and attitudes were analyzed over the time the intervention was carried out, collecting data before starting the intervention and once the intervention was completed through surveys and during the intervention through participatory observation.

Population and sample

The population that participated in this research was the students in 1st year of secondary school in a private educational institution in Montevideo, Uruguay, made up of 70 students.

The sample has the following characteristics:

- These are secondary school students who have successfully completed primary education and are 12 or 13 years old
- They are students of a private school that has the International Baccalaureate program as part of its educational program.
- They are students who attend double shifts at the school
- The students belong to middle and upper-middle class families
- The students did not take part in EpCC or EA programs

The sample chosen was a non-probabilistic sample of 36 students out of 70. This sample was chosen because it was the one approved by the educational institution that facilitated the possibility that the researcher could carry out the intervention.

Variables

In this research the independent variable was "climate change education" and the dependent variable was "climate change mitigation attitudes and behaviors", since the

dependent variable made up of these mitigation attitudes and behaviors can be hypothetically influenced by the independent variable, climate change education.

In order to carry out the research, the theoretical variables and the operational variables that will allow the measurement of the theoretical variables were defined:

Theoretical variable 1: Climate change education

Operational variable 1: Knowledge about climate change (indicators to be measured to obtain information about this knowledge: what is climate change, knowledge about the causes, knowledge about the consequences, knowledge about what is mitigation)

Theoretical variable 2: Climate change mitigation attitudes and behaviors

Operational variable 2: greenhouse gas emission indicators (consumption, transport, food, use of products with high/low footprint).

Measuring instruments and techniques

The techniques used to collect data are the survey and participant observation.

To record the observations made, the instrument used was an observation form that was completed each class with the students.

The second technique used to collect data was two surveys that were administered before the intervention began and after its completion.

Procedures

Table 1 summarizes the steps followed in the research.

Table 1
Procedure for conducting the investigation

	Duration	Remarks
Design and review of the EpCC plan to be implemented	8 weeks	The design was carried out by applying the teaching knowledge and the bibliography presented regarding EA, EpCC and previous research.
Observation sheet design		The observation sheet was designed taking into account the relevant parameters to be observed.
Survey design and adaptation	1 week	The CCAS survey was in English, so an official translation was required. In the case of the initial and final surveys, it was necessary to process the information from the relevant study and adapt it to this project.
Request for approval of the proposal by the educational institution	2 weeks	Once the project design was completed, the proposal was presented to the educational institution in a formal instance that included a presentation with all the characteristics of the intervention, surveys, observations to be made and a description of the project. After an analysis, the institution gave its approval.
Request for ethics committee approval	2 weeks	After submitting the necessary documentation, the university's ethics committee approved the project
Conducting baseline surveys with students prior to beginning the intervention	40 minutes	Students completed the surveys following the instructions on the surveys.
Intervention following the EpCC plan	12 weeks	The intervention was carried out by having classes twice a week for 12 weeks. The intervention followed the outline in Annex 6. In all classes I made observations that were documented on the observation sheet.
Completion of final surveys at the end of the intervention	40 minutes	Students completed the surveys following the instructions on the surveys.

Note. Table prepared by the authors.

Statistical analysis

The statistical analysis performed was descriptive in nature. For the creation and coding of the survey database, Google Forms was used, which works in conjunction with Google Spreadsheets, allowing the information obtained from the surveys to be coded in tables. Frequency percentages and averages were used to analyze the data, which are presented in the form of graphs showing the results obtained. To perform these operations and graphs, Excel was used to export the data obtained in Google spreadsheets.

Results

The results presented below were obtained from the surveys conducted with the sample before and after the implementation of the EpCC program and from the classroom observations carried out in each of the implementation instances. The program was carried out in a sample of 36 students divided into two groups identified as Group A and Group B. Each group consisted of 18 students and the same program was applied. The results obtained are shown for both groups separately.

The results obtained in the initial and final surveys are divided into different categories, the results of which are presented below.

Climate change knowledge

Regarding knowledge of climate change before starting the program, all participants reported having heard of climate change. In both Group A and Group B, 38.9% of the participants said they had heard about climate change and knew what it was; the rest said they were not clear about what it was or did not know about the phenomenon. In both groups, the places where they heard the most about the topic were social networks, TV and school.

When asked if they would like to know more about climate change, none of the students answered "no". The majority (77.8% in Group A and 83.3% in Group B) expressed wanting to know more about the topic in the initial survey. And as for how much they feel they learned about climate change after applying the program (from 1 to 10), the majority of students in both groups (100 % in the case of Group B and 88.9 % in Group A) answered to have learned a lot (between 7 and 10).

In the case of whether they perceive climate change as a serious problem or not as a problem, there is a change towards considering climate change as a more serious problem in the perception of both groups after the program was applied.

In relation to the importance of climate change in the lives of the participants, before the program 66.7% of Group A and 50% of Group B considered climate change as something important or very important in their lives, while at the end of the program 100% of Group A and 83.3% of Group B considered it important or very important.

Causes of climate change

Regarding knowledge of the causes of climate change, before the program was applied, 22.2% of Group A and 55.5% of Group B said they knew the causes, and at the end of the program 94.4% of Group A and 100% of Group B said they knew the causes. As to whether or not these causes that they expressed to know are correct or not, in the case of the causes expressed before the program, some are correct and others are consequences and not causes.

In relation to whether a person's habits influence climate change, before the program 66.7% of Group A and 88.9% of Group B answered yes before starting the program, while 100% of both groups answered yes after its implementation.

Consequences and effects of climate change

Regarding knowledge of the consequences and effects of climate change, 33.3 % of Group A and 55.6 % of Group B said they were aware of them before starting the program, while 100 % of both groups said they were aware of the consequences and effects at the end of the program. The consequences presented by the students before and after can be found in Annex 9.

In relation to whether climate change affects everyone in the world, in Group A the affirmative answer changed from 55.6% to 94.4%, while in Group B it was from 55.6% to 61.1%. As for who they think it affects, if they answered that it does not affect all people (in

the initial survey), some students from both groups said that it affects animals, the atmosphere and living beings, without focusing on human beings; while in the final survey some students from Group B said that it affects people with fewer resources.

Actions and measures to curb climate change

As to whether they have heard about climate change mitigation, in the initial survey no students in Group A said they knew about the topic, and 22.2% of Group B said they had heard about mitigation, while after the program was implemented, 33.3% of Group A and 16.7% of Group B said they had not heard about the topic.

In relation to whether anything can be done to slow down climate change, in the case of Group A, 66.7% said yes before implementing the program and 94.4% said yes after completing it. In the case of Group B, responses ranged from 77.8% to 83.3% after completion. No student expressed that nothing could be done at the end of the program, while 5.6 % of both groups expressed a refusal before starting.

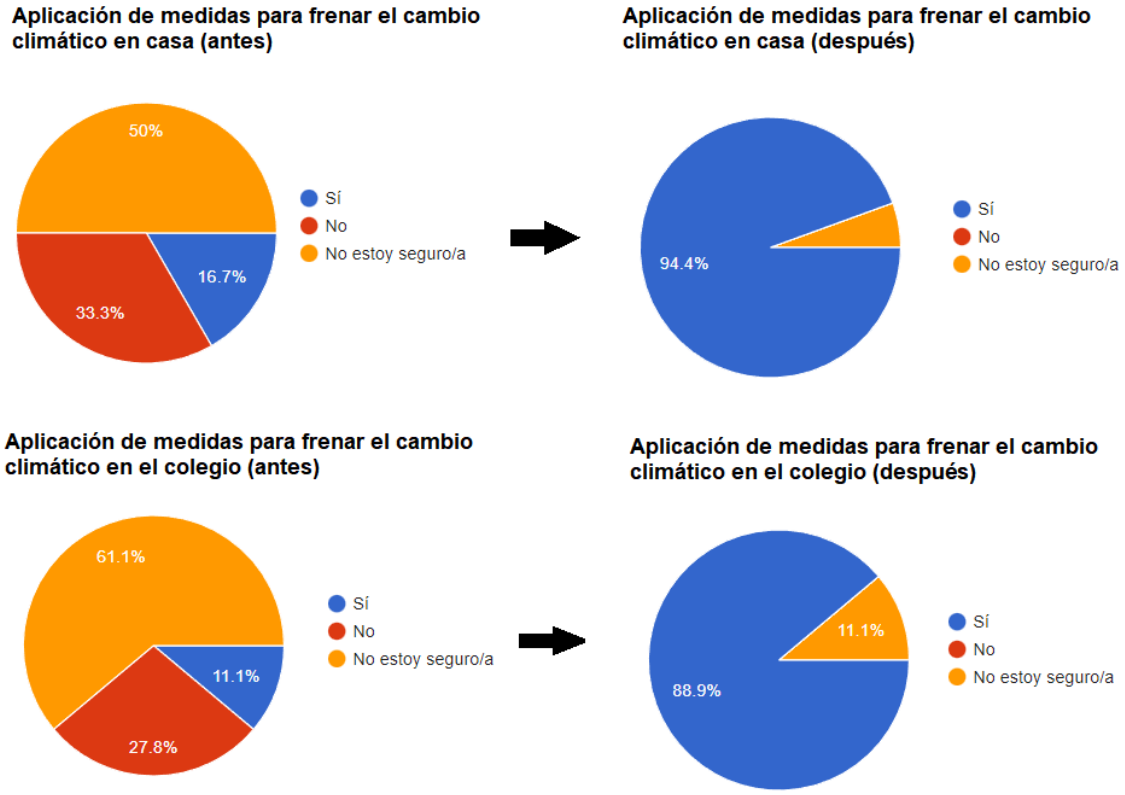
Regarding knowledge of measures to curb climate change, before starting the program, 55.6% of Group A and 22.2% of Group B stated that they did not know any measures, while only 5.6% of Group B expressed ignorance at the end of the program. The number of measures to be applied as explained by the students before and after the program can be seen in Annex 9. It can be observed that the number of measures and their relevance increased at the end of the program.

The item related to actions taken to curb climate change was divided into actions taken at home and at school. In both groups, the actions applied increased at the end of the program as shown in Figure 1 for Group A and Figure 2 for Group B.

In the case of the question on whether they would like to take action to curb climate change, the results obtained in the initial and final survey did not vary much in Group A (88.9% to 83.3% affirmative answers) and in Group B the affirmative answers went from 94.4% to 72.2%. The same trends can be observed in the participation in conferences to curb climate change.

Figure 1

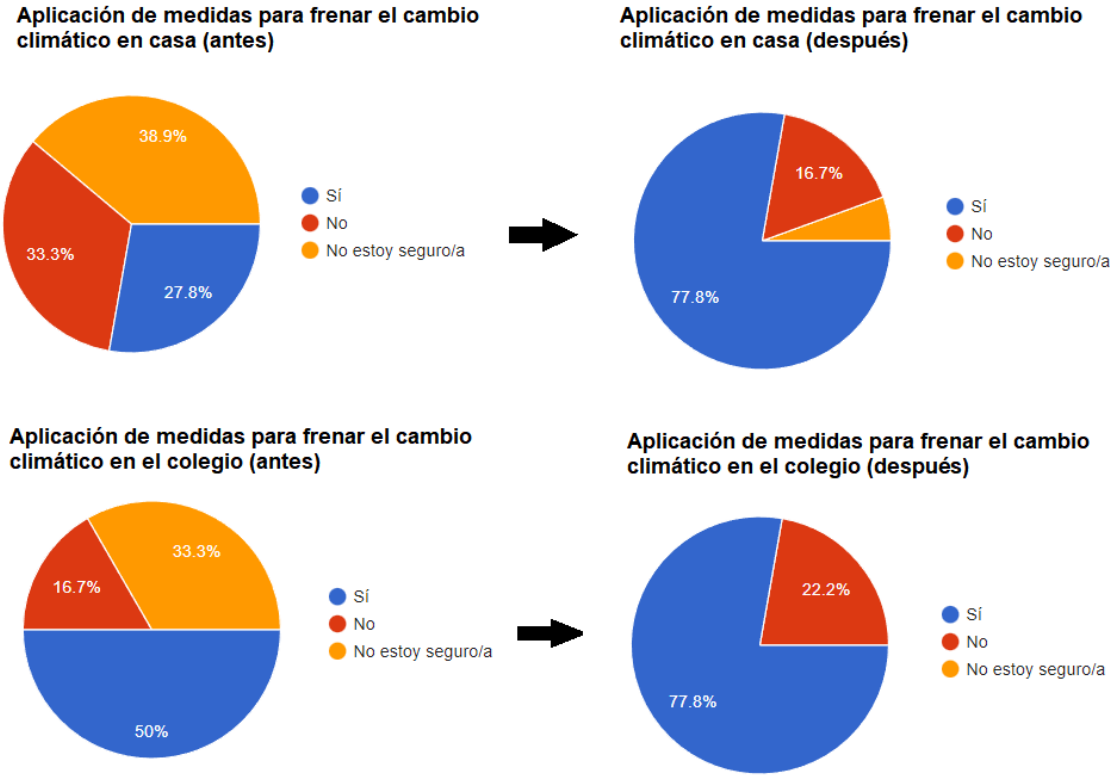
Comparison of actions taken before and after the program was applied in Group A.



Note. Figure prepared by the authors based on survey data.

Figure 2

Comparison of actions performed before and after the program was applied in Group B.



Note. Figure prepared by the authors based on survey data.

Climate change information exchange

Regarding the information shared on climate change, it can be observed that in both groups more information was shared after the end of the program.

The sources of information that were mentioned before and after as sources of information on climate change in both groups were mainly television, social networks and internet before starting the program, while after its implementation one of the important sources that is marked is the unit on the subject.

Feedback

Before starting the program, the majority of students (88.9% in both groups) expressed the need for climate change to be addressed in the educational institution and the need to learn measures to curb climate change (94.4% in both groups).

At the end of the program the students expressed how much they changed their habits regarding climate change mitigation, how much they learned and what they planned to do in the future.

Most of the students in both groups expressed that what they learned was useful, that they learned a lot about climate change, that they improved their habits to reduce GHG

emissions, and that they plan to make changes to further reduce these emissions. The habits that the students expressed their intention to adopt after applying the program are the following:

- Buy second hand clothes
- Do not consume products containing palm oil
- Reducing the amount of waste produced and recycling
- Do not consume so much plastic
- Stop consuming products that generate a lot of GHGs
- Switching from bottled water to a purifier
- Use non-disposable face masks
- Bicycling and walking more instead of driving
- Eating organic food
- Use renewable energies
- Reduce meat consumption
- Adopting a vegan lifestyle
- Raise awareness of the issue on social networks and with people you know
- Use products without packaging (solid shampoo and conditioner)

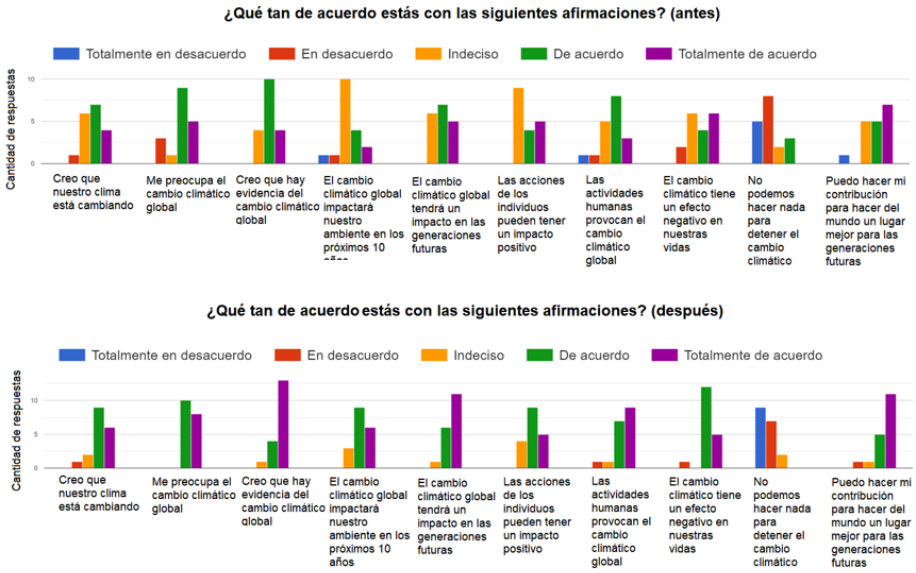
Some students (38.9% in Group A and 11.1% in Group B) expressed that they would have liked to take certain actions or make changes that they could not do because of their age, because their families did not support them or because they do not know how to do it or find it too difficult.

Results of the Climate Change Attitudes Survey (CCAS)

The CCAS survey was administered before and after the program and Figures 3, 4, 5 and 6 show the variations in responses before and after the application of the program in both groups. These responses are discussed in Chapter 5.

Figure 3

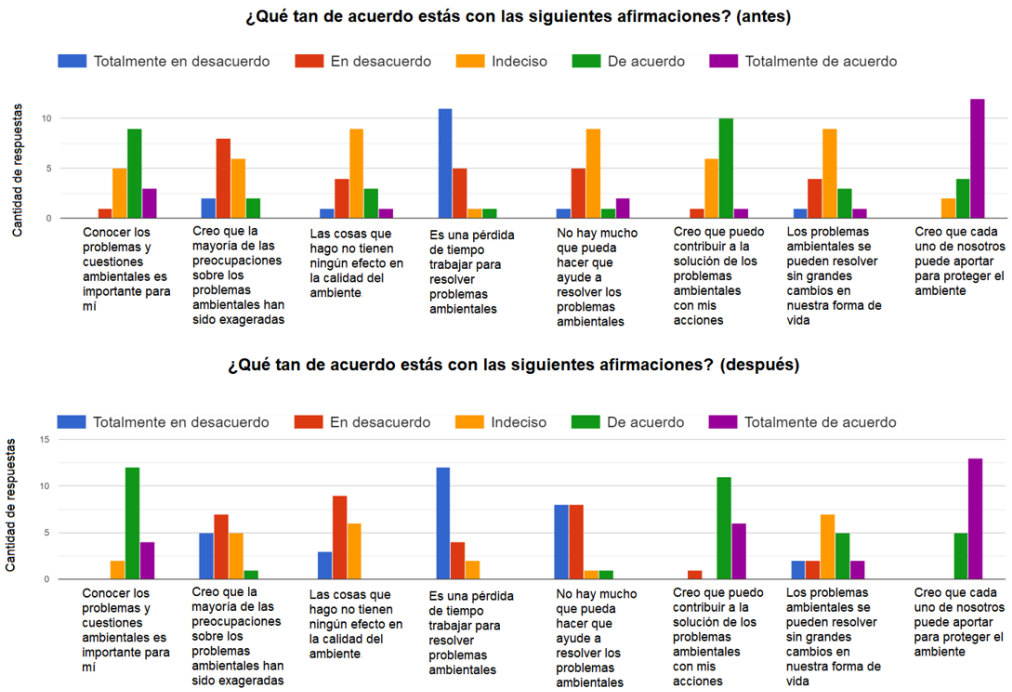
Variation in responses to Part 1 of the CCAS survey regarding attitudes towards climate change before and after program implementation in Group A.



Note. Figure prepared by the authors based on survey data.

Figure 4

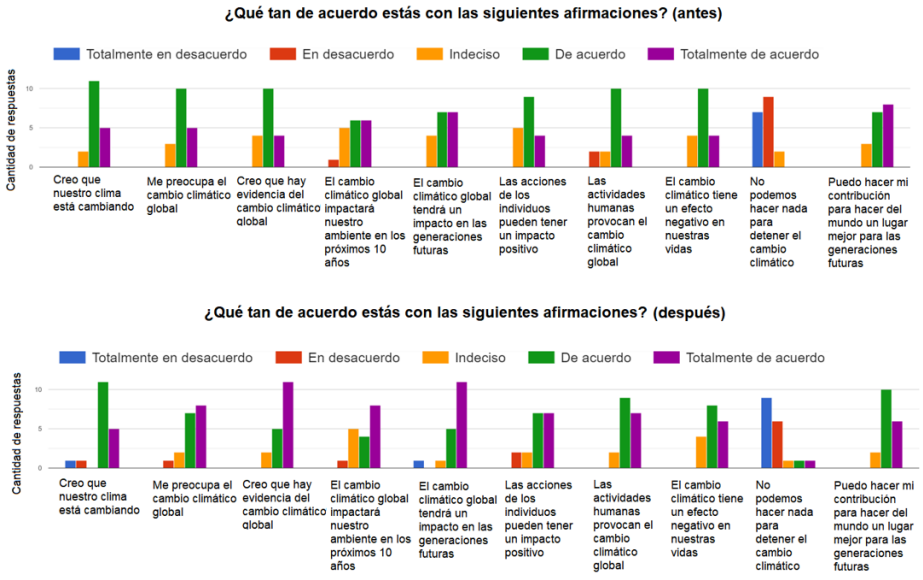
Variation in responses to Part 2 of the CCAS survey regarding attitudes towards climate change before and after program implementation in Group A.



Note. Figure prepared by the authors based on survey data.

Figure 5

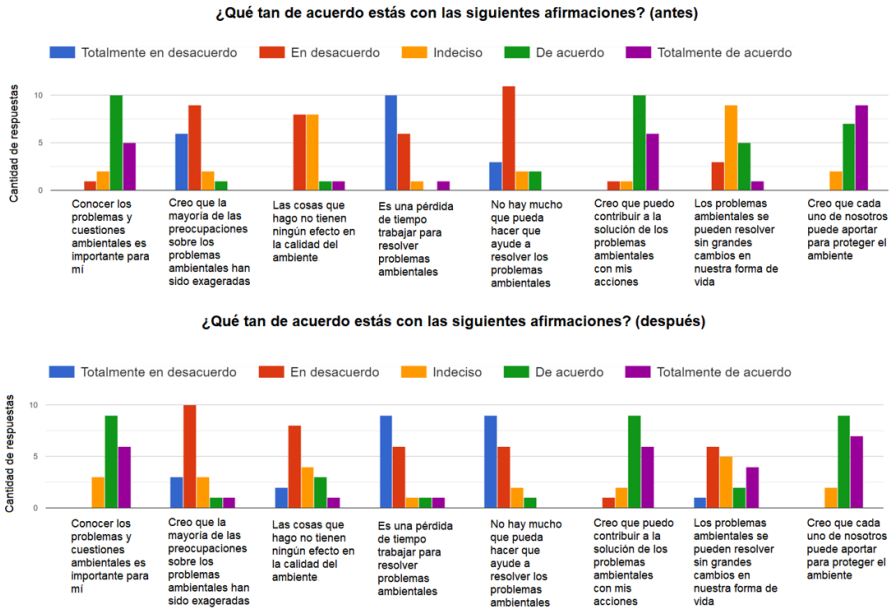
Variation in responses to Part 1 of the CCAS survey regarding attitudes towards climate change before and after program implementation in Group B.



Note. Figure prepared by the authors based on survey data.

Figure 6

Variation in responses to Part 2 of the CCAS survey regarding attitudes towards climate change before and after program implementation in Group B.



Note. Figure prepared by the authors based on survey data.

Results obtained from observations

In each of the meetings with the students of the two groups during the application of the program, observations were made regarding the doubts, comments, attitudes and feelings of the participants with respect to climate change, taking into account the objectives of this research. Observations were recorded in a spreadsheet during and after each instance. In those cases where a comment was considered relevant or important, it was noted at the time. Likewise, at the end of each class, a record was made of the attitudes and feelings regarding climate change that could be observed in that instance.

It was possible to observe how different reactions to the problem emerged in the course of the program's implementation. At the beginning there was more ignorance, but in general, a desire to learn more about the subject, as different parts of the program developed, feelings of indignation, despair, hope, desire for change arose, and at the end of the program in general there was a great willingness on the part of most of the students to be able to mitigate climate change.

Discussion and conclusions

The results of the surveys before and after the implementation of the curriculum and the observations during the curriculum show a change in the students' attitude towards climate change, its importance and the mitigation measures implemented.

Taking into account the different categories evaluated before and after the program, changes can be observed in the following areas: knowledge about climate change, causes and consequences of climate change, measures and actions to mitigate it, and information exchange on the subject.

Regarding knowledge about climate change, it was observed that although most of the students did not know what climate change was, they had heard about it and after applying the program, the seriousness of the problem became visible, since although at the beginning many students perceived that climate change was a problem, they did not consider it to be so serious. This coincides with the results obtained by González Ordóñez (2016) after applying the environmental education program. Although there are differences between the two programs in terms of the time of application (the program applied by González Ordóñez was developed for two years), the type of sample (in the case of González Ordóñez it was children, adolescents and adults, and in this research it was adolescents), and the number of people in the sample (751 people in the case of González Ordóñez and 36 in this case), the two programs were applied with the purpose of obtaining a change in attitude with respect to climate change and its mitigation, and in both cases the needs of the people in the sample were taken into account to develop the program. Likewise, the categories evaluated are similar, in order to be able to make a comparison between the results of the two studies.

Regarding knowledge of the causes and consequences of climate change and whether people's habits influence it, as in González Ordóñez's 2016 research, adolescents expressed that after the program was applied their knowledge increased by a large amount.

Regarding the actions applied to mitigate climate change, there was a noticeable increase in the number and variety of actions that students began to apply after the program was implemented, which shows the effectiveness of the program in promoting mitigation actions. This is closely related to the results obtained by Cordero et al. (2020), as the program used the tools outlined by the authors: exploration of the connections between personal life and climate change and a project where students could apply what they learned to mitigate climate change.

One of the points in which no changes were seen before and after the program is in the implementation of actions and participation in conferences to curb climate change. In one of the groups the number of positive responses decreased after the program, unlike what is seen in González Ordóñez (2020). This may be because the students did not fully understand what a climate change journey is (in fact some raised the question when answering the survey) or because they felt they had already participated and therefore completed their homework. This is an important point to make in order to improve the program by placing more emphasis on the relevance of continuous participation. Likewise, it is important that the programs are applied systematically and not on an ad hoc basis, in order to strengthen students' links with the community and their participation in events related to climate change mitigation.

In the case of information exchange, it can be observed how the exchange with friends and family was strengthened after the program, as shown in González Ordóñez (2016). In the case of the exchange with teachers, which is not evaluated in the program applied by González Ordóñez, which was evaluated in this project, no changes are noted before and after the application of the program. This may be because prior to the start of the program, the major exchange of information on climate change that students had was with teachers, and this has probably not changed as they continued to exchange in the same way.

As can be seen in the results, the feedback received at the end of the program application was mostly positive. One of the observations made by some participants is that they were unable to take action due to obstacles in their family, which may be a point to take into account in order to involve families in a meaningful way. In addition, as mentioned above, it is important to

highlight the importance of continuing with the changes after the program has ended and changing habits with respect to climate change mitigation so that they remain over time. Similarly, the list of habits that students expressed their intention to apply (or were already applying) to reduce their GHG emissions and, therefore, mitigate climate change is significant and although the nature of this qualitative study was not intended to measure these emissions, if these actions are applied and maintained over time, a great potential for mitigation is identified in the case of the EpCC, as Cordero at al. (2020).

In the case of the CCAS survey, which proved useful for measuring changes before and after a program in high school students (Christensen and Knezek, 2015), it can be observed how attitudes towards climate change change change positively. Although the attitude of the students at the beginning of the program was not negative in general with respect to their attitude and the importance of climate change and the problems it represents, it could be observed that attitudes regarding what can be done to mitigate climate change and the responsibility that human beings have becomes more visible and in those cases where students were in agreement or undecided regarding human participation or mitigation measures, a change towards total agreement is noticeable. The results of this survey are in line with those obtained in the initial and final surveys.

Systematic observation of what happened in each class in which the program was carried out allowed us to understand some of the students' decisions and how to improve the implementation as we received comments and feedback from the participants. It is important to note that the context of the participants is highly positive in socioeconomic terms. This set some guidelines when it came to feeling directly affected by climate change, as some students expressed that they would not be affected directly or with an "emergency" because they had the means to adapt. However, through class discussions the students developed tools to understand that climate change does affect them and even if they do not feel the effects directly, it affects their community members. As noted by Monroe et al. (2017), deliberative discussion helps students to better understand other people's points of view and in this way, they can size up the effects of climate change, not only in their lives but in the community.

Conclusions

The lack of information among the population regarding climate change, the lack of EpCC programs in the Uruguayan educational plan (covering the entire population and not just some sectors) and the seriousness of the effects of climate change make it an urgent matter to consider programs and plans that promote environmental awareness, a change of attitude towards climate change and encourage attitudes of climate change mitigation in the population in order to reduce GHG emissions.

It was evident that before applying the EpCC program there was a lack of knowledge about climate change (causes, consequences and ways to mitigate it) in most of the students who participated. While many had heard of the subject, they did not have solid or accurate knowledge.

Regarding the objective of creating an EpCC program and applying it with students in the first year of secondary school, it can be said that it was created taking into account the needs of students of that age, their previous knowledge and their context. The application of the program was successfully carried out in the two groups that participated, observing changes in their climate change mitigation practices and their attitude towards the subject, which allows reaffirming a relationship between the EpCC and the emission of GHGs.

The objectives related to describing mitigation practices and attitudes towards climate change and the evaluation of behavioral and attitudinal changes could be satisfactorily met. The

applied EpCC program shows a positive influence on the attitudes towards climate change and mitigation practices of the participating students.

An important finding to take into account in future plans is the importance of considering the context of the students and having the necessary flexibility to be able to change the plan as it is implemented in order to be able to start from the students' knowledge and their real needs, even if these are not always the same as those of the educator who implements the program. This does not mean that topics that students do not raise cannot be addressed, but it is important to relate them to the needs they raise as part of their community, within a specific context and an appropriate scientific framework.

Given the lack of systematized climate change education programs in Uruguay, this research is shown as a small initial step to be able to continue researching and developing a program that covers all schooling and can involve working groups (including teachers and specialists in the area of climate change) that aim to implement an EpCC program in the different stages of people's education, including elementary school, secondary school and also tertiary and university education, always with the aim of mitigating climate change. An important objective that can be added in future research is that of adaptation to climate change.

One limitation of the program that can be improved in future research is the involvement of the students' families. One of the limitations raised by students when it comes to changing habits is the family, so it would be important to involve families when implementing EpCC plans. Also, given the importance of the community and the context of the students, the programs would benefit from closer interaction between students and civil society movements and organizations fighting for environmental rights.

Given the nature and scope of this research, the program was created by one person and applied with a small population. Future lines of research would benefit from joint planning with professionals from different areas (education, environmental sciences, social sciences) and in larger populations that include students from different socioeconomic and territorial contexts. It would also be an improvement to the research to be able to measure attitudes and mitigation practices after a significant amount of time has passed since the program was implemented in order to see if the practices have become habits. Likewise, mixed research (qualitative and quantitative) would allow us to obtain accurate figures on the amount of GHG emitted before and after the program was implemented.

References

Christensen, R., y Knezek, G. (2015). The Climate Change Attitude Survey: Measuring Middle School Student Beliefs and Intentions to Enact Positive Environmental Change. *International Journal of Environmental & Science Education, 10*(5), 773–788. https://doi.org/10.12973/ijese.2015.276a

Cordero, E. C., Centeno, D., y Todd, A. M. (2020). The role of climate change education on individual lifetime carbon emissions. *PLoS ONE, 15*(2), 1–23. https://doi.org/10.1371/journal.pone.0206266

Cruz, N., y Páramo, P. (2020). Educación para la mitigación y adaptación al cambio climático en América Latina. *Educación y Educadores, 23*(3), 469–489. https://doi.org/10.5294/edu.2020.23.3.6

González Ordóñez, A. (2016). Programa de educación ambiental sobre el cambio climático en la educación formal y no formal. *Universidad y Sociedad, 8*(3), 99–107. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2218-36202016000300013

IPCC. (2021). *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Equipo principal de redacción, Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, y B. Zhou (eds.)]. https://www.ipcc.ch/report/ar6/wg1/#FullReport

Ludeña, C. E. y Ryfisch, D. (2015). Uruguay: mitigación y adaptación al cambio climático. *Banco Interamericano de Desarrollo. División de Cambio Climático y Sostenibilidad, Washington DC Nota Técnica, 860*, 1-28. https://publications.iadb.org/publications/spanish/document/Uruguay-Mitigaci%C3%B3n-y-adaptaci%C3%B3n-al-cambio-clim%C3%A1tico.pdf

Monroe, M. C., Plate, R. R., Oxarart, A., Bowers, A., y Chaves, W. A. (2017). Identifying effective climate change education strategies: a systematic review of the research. *Environmental Education Research.* https://doi.org/10.1080/13504622.2017.1360842

Pnuma-Regatta. (s.f.). *Marco Regulatorio y Financiamiento para Cambio Climático*. http://www.cambioclimatico-regatta.org/index.php/es/perfiles-de-paises

UNESCO. (2011). *Educación sobre el cambio climático para el desarrollo sostenible. Iniciativa de la Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura sobre el cambio climático*. UNESCO. http://unesdoc.unesco.org/images/0019/001901/190101s.pdf

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B-LEARNING IMPLEMENTATION STRATEGY IN TELECCOMUNICATION ENGINEERING, UNED COSTA RICA

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Abstract. The objective of the study was to develop a strategy for the implementation of the B-learning model in the Telecommunications Engineering program at UNED, Costa Rica. The study worked under a qualitative approach with an action-research design where three targeted samples were defined: graduates of the career, employers and academic managers. In addition, techniques such as surveys, review of case studies, literature review and documentary review of the AAPIA accreditation model were used to collect information. The information was processed through comparative techniques that allowed associating the topics of study with the competencies and methods of active learning. Among the results, it was found that in Costa Rica there are careers accredited with AAPIA but none has established the B-learning model as the basis of its learning process. The most valuable result is that four to six significant learning activities were incorporated per subject, about 300 academic and evaluation activities were proposed, with a range of 17 to 20 activities per subject. The work demonstrated that B-learning can be applied in engineering careers, and the strategy also provides the planning to achieve the AAPIA accreditation of CFIA, being an example framework, that other engineering careers can use.

Key words: Active learning, Telecommunications, Distance learning, Engineering.

ESTRATEGIA DE IMPLEMENTACIÓN DE *B-LEARNING* EN LA CARRERA DE INGENIERIA EN TELECOMUNICACIONES, UNED COSTA RICA

Resumen. El objetivo del estudio fue desarrollar una estrategia para la implementación del modelo *B-learning* en la carrera de Ingeniería en Telecomunicaciones de la UNED, Costa Rica. El estudio se trabajó bajo un enfoque cualitativo con un diseño de investigación – acción en donde se definieron tres muestras dirigidas: graduados de la carrera, empleadores y encargados académicos. Además, para la recolección de información se usaron técnicas como encuestas, revisión de casos de estudio, revisión bibliográfica y revisión documental del modelo de acreditación de AAPIA. El procesamiento de la información fue mediante técnicas comparativas que permitieron asociar las temáticas de estudio con las competencias y métodos del aprendizaje activo. Dentro de los resultados se encuentra que en Costa Rica hay carreras acreditadas con AAPIA pero ninguna ha establecido el modelo *B-learning* como base de su proceso de aprendizaje. El resultado de mayor valor es que se incorporaron de cuatro a seis aprendizajes significativos por asignatura, se propusieron alrededor de 300 actividades académicas y de evaluación, con un rango de entre 17 a 20 actividades por asignatura. Del trabajo se demostró que el *B-learning* se puede aplicar en

carreras de ingeniería, además la estrategia da la planificación para alcanzar la acreditación AAPIA del CFIA, siendo un marco de ejemplo que otras carreras en ingeniería pueden utilizar.

Palabras clave: Aprendizaje activo, Telecomunicaciones, Enseñanza a distancia, Ingeniería.

Introduction

The Telecommunications Engineering program at UNED in Costa Rica began in 2016, with what is known in the country as a Bachelor's degree, which is not the initial degree of professional training, but an intermediate level. For the year 2021, with the approval of the National Council of Rectors (CONARE) to start the first degree of professional training, called Bachelor's Degree, the career must decide its learning model, since the Bachelor's Degree is totally virtual.

In engineering, virtual education is rejected as a valid model for teaching professional bases, even though studies such as that of López-Collazo (2020) point out that today's society requires engineers with the ability to respond to the demands of the environment. In addition, the career decides that, although there should be a continuity towards the Bachelor's degree education model, elements such as the students' access to the Internet and the need to acquire manual skills would not allow a 100% virtual implementation.

Bartolomé-Piña et al. (2018) indicate that a career can start with a high face-to-face percentage to evolve towards a virtual model. For this reason, the Telecommunications Engineering program establishes the *B-learning* model as the model that will allow this transition from the classroom to the virtual, and which, in turn, will allow students to acquire their engineering skills.

Another aspect considered by the race in its decision is that educational models evolve, and the digital transformation in the education sector becomes an obligation to adapt to the needs of the market and society. The concept of Society 5.0 implies that universities should train professionals with innate digital skills, with the ability to debate with intelligent agents, human or not (Cortés-Rico, 2020). Therefore, the digital competence required in engineers and professionals graduating from university careers should be based on the following dimensions: computer competence, information competence, generic cognitive competence, multiple literacies and digital citizenship (Terreni et al., 2019).

To achieve this goal, a strategy must be articulated because, as Arana (2020) points out, future professionals must have digital skills integrated into their competencies. Therefore, the Bachelor's Degree should allow students to acquire basic manual skills of an engineer, generate meaningful learning and provide training aligned to market trends, but they should also acquire digital skills such as interacting with non-human intelligent systems, working collaboratively using ICT, managing information and thus innovating, all this without departing from the UNED education model and the higher degree of Bachelor's Degree.

In addition, the career aims to achieve the accreditation model of the Accreditation Agency for Engineering and Architecture Programs (AAPIA) of the Federated College of Engineers and Architects (CFIA), so that graduates can choose to continue their studies in countries such as the United States and Canada (World Federation of Engineering Organization [WFEO], 2020). Within this model, a total of 12 attributes are worked on, which must be established at low, intermediate and high levels.

This accreditation model forces the engineering program to reformulate its teaching methods, because the intentionality is not only aimed at acquiring technical knowledge, but also to reach the levels of the declared attributes. In this way, academic activities, evaluated or not, have an additional intentionality of an attribute such as the development of written expression, relationship between engineering and society, among others.

From the literature review we worked with case studies from the Spanish American region and Costa Rica. From this study there is no similar work to this one in terms of the implementation of *B-learning* on a complete career, what are located are case studies that were raised for specific courses or subjects.

López-Collazo (2020) presents the implementation of the inverted classroom technique, which is part of the portfolio of *B-learning*techniques in the Telecommunications and Electronics Engineering course at the "José Antonio Echeverría" Technological University of Havana. In this implementation, the face-to-face teaching model was not varied, but a technique was incorporated that gives a twist to what is done in the classroom and what is done at home, the classroom is to answer doubts, interact and deepen. The home is where knowledge is acquired through self-learning. The results obtained were varied, because as well as positive evaluations, there were also negative opinions.

This case shows one of the reasons why a certain part of the students reject *B-learning,* and specifically the active learning technique. It is because by breaking the model of a teacher transferring knowledge, students must self-regulate and be self-taught. And, on the other hand, from the teachers themselves, because the active learning and combination of techniques proposed by *B-learning* require planning and preparation.

B-learning application models are based on a face-to-face/distance relationship and are measured by the achievement of significant learning. Hence the importance within *B-learning* of the pedagogical designs, methodology and techniques that are applied, adequate use of resources and intentionality with which they are used, degree of class planning and disposition and competencies of the teaching staff (García-Aretio, 2018).

There is also the case of García Chi et al. (2019), in the Simulation subject of the Computer Systems Engineering course of the Tecnológico Nacional de México (TecNM) where they implemented the mixed modality through the use of LMS platform, in this case Moodle is mentioned. The *B-learning* modality is implemented because classroom classes and laboratories are maintained, and the application of Moodle is for the solution of learning strategies. In this case, there is a combination between the face-to-face model and the *E-learning*model, hence it is considered a *B-learning*.

In other cases, the application of the *B-learning* model is directed to thematic units and not to the entire subject. This is the case of Corrales-Beltrán et al. (2018), where a micro-curricular design was developed for a specific topic and integrated the use of web 2.0 technologies as part of the teaching process. The results of the implementation were satisfactory, because they changed the negative perception of the students and improved their academic performance.

With respect to the case of Costa Rica, it was determined that no engineering career has this model as a basis. Similar to the region, there have been cases of implementation of specific strategies or in specific courses. Sandoval-Carvajal et al. (2017) mention of the integration of Problem-Based Learning (PBL) in the Systems Engineering career at the National University (UNA), being a specific technique. The same case of the Bachelor's Degree in Telecommunications Engineering where what is

implemented is the 100% virtual model, but it is a higher degree, not at the Baccalaureate level (Santamaria-Sandoval and Chanto-Sanchez, 2020).

In another case, as a result of the emergency and modifications that had to be made due to the pandemic in 2020, the *B-leanirng* model arose as an emerging measure, where more than three thousand teachers were trained to provide continuity to the study programs at the University of Costa Rica (Oviedo and Alfaro, 2020), but it is not an implementation of a career as such.

Method

The study has a qualitative approach under an action-research design, where the researcher is an active part as one of those in charge of the program. The study was defined as qualitative because the result is for a given case, and the results are perceptions and assessments from the different populations to which the study is applied.

The following inductive categories, shown in Table 1, were established for the approach of the study:

Table 1
Research categories

Category	Definition	Operationalization	Research techniques
CFIA Attributes	Traits that graduates of university engineering programs must have in order to be accredited (WFEO, 2020)	Initial Intermediate Advanced	Bibliographic review Documentary review Surveys Expert Judgment
*B-learning*model	Education model that allows the integration of diverse strategies and methods giving flexibility and adaptability to the curricular designs of careers (García - Aretio, 2018)	Activities Significant learning Mediations	Bibliographic review Surveys Expert Judgment
ICT platforms for education and experimentation	ICT tools that enable learning management, experimentation or are the object of study (Hernández-Gómez, Carro-Pérez, & Martínez-Trejo, 2019).	Laboratories EVA in LMS	Bibliographic review Documentary review Review of platform logs Surveys Expert Judgment
Professional fields of Telecommunications Engineering	Areas in which a professional in Telecommunications Engineering can develop (Universidad Estatal a Distancia, 2021)	Career fields of study Themes by subject	Bibliographic review Documentary review Surveys Expert Judgment

The study participants were from three population groups: employers, graduates and academic peers. For all populations, targeted samples were established, because the objective is not to establish a trend, but rather the assessments that can be made by different stakeholder groups. Table 2 shows the research subjects.

Table 2
Research subjects

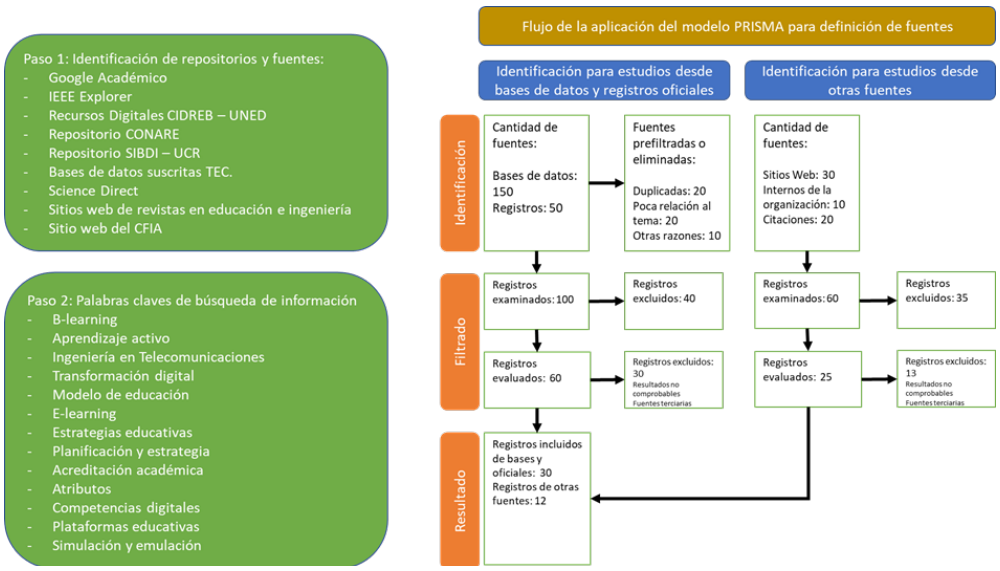
Subject or population group	Description	Quantity	Information

Program managers	Administrative and academic managers of the Telecommunication Engineering program	4	Perspective of *B-learning*implementation Evaluation of the teaching model Consideration of attribute levels Possible activities and their validation
Bachelor's Degree Graduates	Students graduating from the Bachelor's Degree in Telecommunications Engineering until 2021	13	Validation of the bachelor's degree graduate profile Assessment of the virtual education of the bachelor's degree Professional fields of the Telecommunications Engineer
Professionals in the field of telecommunications	Professionals working in the telecommunications field in Costa Rica.	40	Market need Professional fields of development of the Telecommunications Engineer Validation of the attributes of the career graduate Conceptualization of activities that can be carried out to approach the professional field

The techniques used included a literature review using the PRISMA method. Figure 1 shows the process carried out for the selection, classification and filtering of sources.

Figure 1

Application of the PRISMA model in the literature review methodology for state of the art constructions



Note. Elaborated from PRISMA. (2019). PRISMA TRANSPARENT REPORTING of SYSTEMATIC REVIEWS and META-ANALYSES. http://prisma-statement.org/prismastatement/flowdiagram.aspx

A second technique was the application of surveys to three previously defined population groups. This survey was administered between June and July 2021 through the Google Forms platform. The questionnaires for employers and graduates were 13 and 10 questions respectively. In the case of the graduates, the questions focused on the techniques and tools applied during the Bachelor's degree; for the employers, the questions focused on the skills that they consider future graduates should have.

A third survey was applied to the academic peers, where the emphasis was to obtain their perspective regarding the subjects, academic activities and teaching methods, being a technical and academic perspective.

Subsequently, the expert judgment technique was applied for data analysis in combination with the focus group. This allowed to generate validity and reliability to the data, since not only the understanding of the researcher-actor is raised, but also the vision of academic peers is contrasted. This activity is carried out at the end of July 2021 under an analysis guide.

Statistical analysis methods were applied in the processing stage. Although the results are not for quantitative analysis, descriptive statistical methods were used. These were used to obtain frequencies, modes and bar graphs to determine the amount of learning, the number of activities by type of activity, and the weight of the topics.

Thus, the method was divided into two phases: data collection and a second processing phase. Figure 2 shows the collection process and Figure 3 shows the processing process.

Figure 2

Data collection process of the study

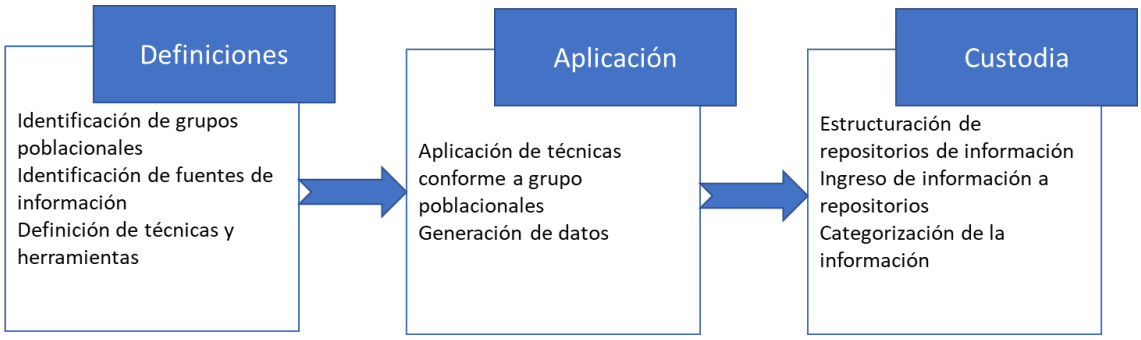


Figure 3

Stages of information processing of the study

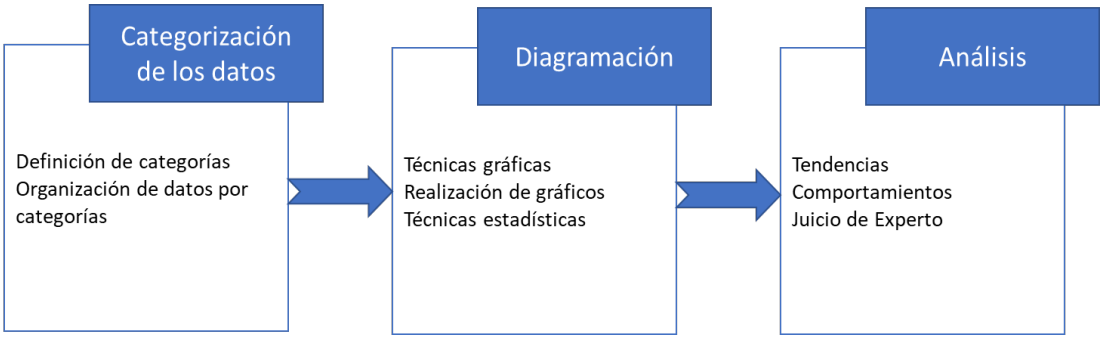


Table 3 shows the summary of the methodology applied in the project.

Table 3
Summary of applied research methodology

Research approach	Qualitative - professional study
Proposed methodology	Field work / Case study
Application environment	Telecommunications Engineering Career at UNED, Costa Rica Graduates and market employers
KPIs (Key Performance Indicators)	*B-learning* alignment with virtual distance education. Didactic activities by subject. Attributes by subject Significant learning by subject. Reuse of existing technological platforms at the University Project risk and importance Critical line of the project. Alignment of meaningful learning with the market. Curricular design of each subject
Study categories	CFIA Attributes *B-learning model* ICT platforms for education and experimentation Professional fields of Telecommunications Engineering.
Variables related to the categories	Attribute level by subject Number of attributes per subject Number of activities per subject Number of significant lessons learned per subject Number of laboratories proposed Level of application of virtuality in the degree program Number of activities related to professional practice per course Percentage of activities related to professional practice

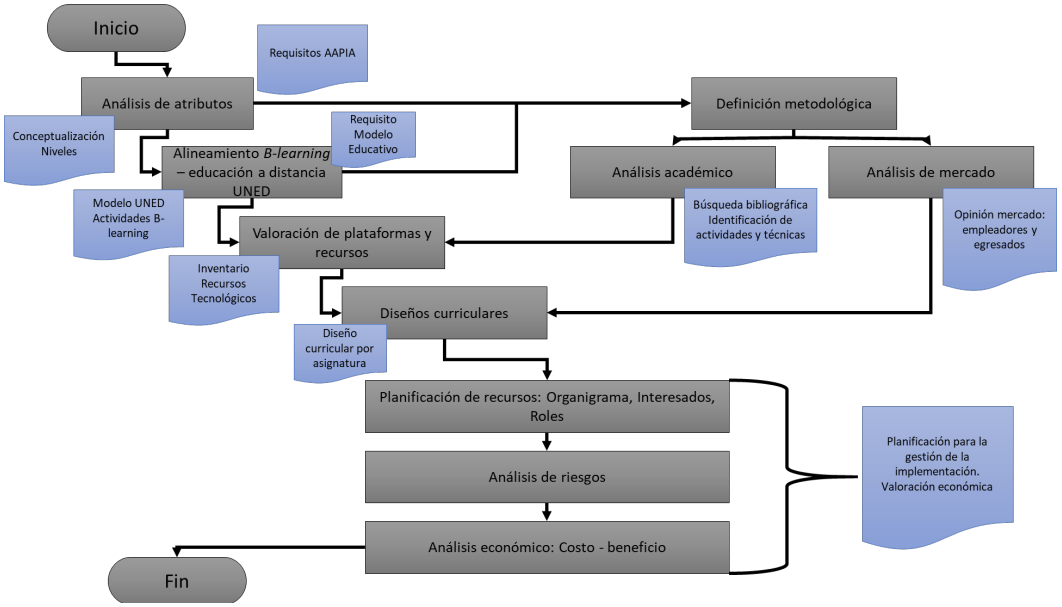
Results

The main result obtained from the research was the construction of the strategy under a *top-down*model. The first step was to define the attributes of the AAPIA model, which were instrumentalized through meaningful learning and with them learning objectives and evaluative activities were determined.

Figure 4 shows how the strategy was structured.

Figure 4

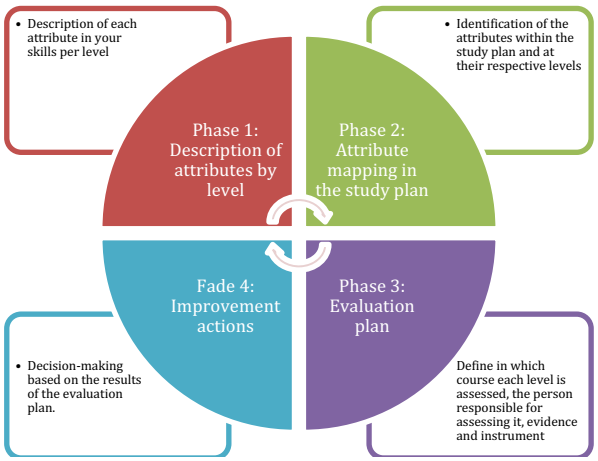
Structuring the proposed solution



The working model proposed by Meza-Badilla et al. was used to build the solution. (2017), where from four steps the attributes can be incorporated into academic programs. However, since it is defined as a strategy and not the implementation as such, it is defined as using only the first two phases of the model. The method is shown in Figure 5.

Figure 5

Steps for the incorporation of the 13 attributes of the AAPIA model in engineering careers



Note. Adapted from Meza-Badilla, E.C., Aguilar-Cordero, J.F., Quesada-Sanchez M.I. and Delgado-Montoya W. (2017). Attributes of graduation in engineering careers: Methodology of evaluation by results.

The first concrete result obtained from the research was the description of the attributes of graduation of the students of the Bachelor's Degree in a personalized way towards the Telecommunications Engineering career. The complete description by

attribute is shown in Table 4, where these descriptions contemplate the knowledge of the graduate, the indications of the AAPIA model and the methodology of Meza-Badilla et al. (2017).

Table 4

Descriptions of the attributes of the AAPIA accreditation model for the Telecommunications Engineering program at UNED

Attribute	Level	Description
Engineering Knowledge (IC)	Av	The graduate: He integrates in his solutions to complex telecommunications engineering problems the theoretical and conceptual foundations of the discipline, and is able to explain their use. Designs, builds, implements and operates solutions applying telecommunications engineering principles and standards.
Problem analysis (PA)	Av	Apply and develop methods of analysis to the complex problems posed by the evolution of telecommunications technologies and services. Establishes, formulates and proposes schemes for the understanding of problems, by means of which the resolution of these is planned.
Design Solutions (DS)	Int	Design solutions to telecommunications engineering problems by applying existing methods. Infer possible solutions to a problem under conventional methods, professionally accepted standards and norms.
Research (IVT)	Int	Deduce possible results and trends from academic and professional research in the field of telecommunications engineering. Applies engineering and research methods to infer results from experiments and tests applied to telecommunications engineering technologies and solutions.
Modern engineering tools (HM)	Av	Evaluates and validates engineering tools applied to telecommunications infrastructure and solutions to demonstrate their usefulness. Suggests improvements, updates and new integrations of tools and technological platforms for the generation of value to the telecommunications engineering solutions.
Engineering and Society (IS)	Av	Contextualizes solutions to complex problems in telecommunications engineering with respect to the value they bring to society. Infer, synthesize and demonstrate the benefits to society from problem solving and solution development, as well as biases.
Environment and Sustainability (MAS)	Av	Evaluates the sustainability of telecommunications engineering solutions from an environmental perspective. Formulates and proposes engineering solutions in telecommunications that will provide benefits to the environment and the sustainability of ecosystems.
Ethics and equity (EE)	Av	Applies the code of ethics and current professional practice regulations in accordance with the telecommunications solutions to be developed. Decides actions and activities in which he/she participates and in which he/she does not participate in accordance with the ethical principles of the profession.
Individual and team work (TIE)	Av	Leads professional teams to develop solutions to complex problems in telecommunications engineering. Integrates high-performance work teams and fulfills individual responsibilities in a self-directed manner.
Communication (CM)	Av	Prepares concise, precise, clear and effective written communications on aspects of telecommunications engineering, projects in which he/she participates and his/her own work. Communicates orally and verbally through executive presentations the results of engineering work in telecommunications of their projects or work.
Project Management and Finance (APF)	Int	He customizes project management methods to the organizations where he works for the structuring, planning and execution of the development of telecommunications solutions. Influences and questions financial results to projects of the organizations related to telecommunications, as well as country project.
Life Long Learning (LLL)	Int	It recognizes the dynamism of telecommunications and the need for constant updating to generate valuable solutions. Applies new skills acquired in a continuous updating process in the development of solutions to complex problems in telecommunications engineering

With these definitions and considering the study topics, the relationships and levels per subject are proposed. It should be clarified that the ALV, APF, DS and IVT attributes are decided not to reach the advanced level. This is so because on the one hand, accreditation is only achieved when the student obtains the Bachelor's Degree and the Bachelor's Degree, and secondly, because within the Bachelor's Degree these attributes are deepened through the curriculum and study topics.

Table 5 shows the relationship between the bachelor's degree subjects, attributes and their levels.

Table 5

List of attributes and subjects for the bachelor's degree curriculum

Subject	Attributes (I - Initial, Int - Intermediate, Av - Advanced)											
	CI	AP	DS	IVT	HM	IS	MORE	EE	TIE	CM	APF	ALV
Level 4: Introduction to Engineering						Int	Int	Int				
Level 5: Signal Systems and Analysis	Int	I							I			
Level 5: Statistics I for engineering											I	
Level 5: Electrical Networks I	Int	I										
Level 6: Optical fiber	Int											
Level 6: General Electronics	Int	I										
Level 6: Graphic design for telecommunications networks			I								Int	Int
Level 6: Instrumentation systems I Laboratory	Int	I			I							
Level 6: Electrical Networks II	Int	Int					Int					
Level 6: Engineering Management						Int				Int	Int	
Level 7: Structured Cabling	Int				Int							Int
Level 7: Advanced Electronics	Int	Int										
Level 7: Computer Architecture	Int								Int			
Level 7: Instrumentation systems II Laboratory	Int				Int				Int			
Level 7: Electromagnetic Theory I	Int						Int					
Level 8: Radio and mobile link	Int		Int		Int							
Level 8: Electronic Communications Systems I		Int	Int									
Level 8: ICT Hardware and Software Infrastructure	Int		I		Int							
Level 8: Telecommunications Network Infrastructure			Int									Int
Level 8: Electromagnetic Theory II	Int											
Level 9: Fixed and mobile telephone systems			Av			Av						
Level 9: Electronic Communications Systems II	Av				Av							
Level 9: Internet network architecture and IoT technologies	Av				Av	Av						
Level 9: Telecommunication Network Systems			Av						Av			Int
Level 9: Unified Communications Systems					Av	Av						
Level 10: Research Methods and Techniques				Int			Av			Av		
Level 10: Television Systems	Av	Av										
Level 10: Telematic Networks and Routing Protocols	Int											Int
Level 10: Management and Monitoring of Telecommunications Networks		Av			Av				Av			
Level 10: Virtualization Systems	Av				Av							
Level 11: Supervised Practice			Int		Av	Av	Av	Av		Av		

The third step in the construction of the strategy was the assessment of techniques that can be associated with the B-learning teaching model. In the first instance, the evaluation components that UNED has in its distance education model were determined. These four components are (Jiménez Aragón, 2020):

- Test: Any evaluative activity not exceeding three hours. Its purpose is to evaluate the basic productive level of use of knowledge and skills to act on problems of the profession similar or equal to others already studied or solved in self-assessment exercises, previous activities. These activities include online, short or face-to-face written tests.
- Task: Its objective is exclusively to evaluate the reproduction of content; this component has no assignment within the cognitive plane of production. The activities considered as homework include album, portfolio, practice exercises, questionnaire, file, comparative table, glossary, concept map and mind map, among others.
- Professional Field: These are activities that can be carried out on site, remotely, simulated and, in the case of telecommunications, emulated activities. The objective is to evaluate the use of theoretical knowledge and skills to act in practical cases that recreate the profession. Reports, laboratory logs or reports, field work, systematization of experiences, field practices are included.
- Academic production: This is the component that evaluates the student's capacity of advanced productive domain, where he/she makes use of information sources, disciplinary knowledge and skills on which he/she applies scientific research logic. Among the activities are projects, proposals for scientific articles, documentary research, applied research, essays, theses, without being exhaustive.

This establishes a relationship between *B-learning strategies,* academic techniques, evaluative activities, their component and attributes, as shown in Table 6:

Table 6

Synthesis of evaluative and non-evaluative teaching strategies, techniques and activities for the Bachelor's Degree in Telecommunications Engineering

Strategy	Technique	Activities	Evaluative component	Attribute
Self-study	Individual Study Individual Tasks Individual laboratory Individual field work Projects Research	Testing tasks Summaries Testing Project reports Construction of electrical, electronic and telecommunications solutions Virtual laboratory practices Portfolio Construction of a reflective diary Self-assessment exercises Reading of individual material	Task Academic production	CI TIE ALV APF DS IVT HM CM
Interactive learning (includes active learning)	Master exhibitions Interviews Visits to specialized sites Conferences Inverted classroom Gamification of education Laboratories	Synchronous virtual tutoring Interactive questionnaires Discussion forums Visit reports Listening to conferences Mind and concept maps Game-based practices for testing Laboratory practices Development of wikis Interactive reviews	Professional field Tests	CI ALV IS DS HM CM
Collaborative learning	Troubleshooting Inverted classroom	Case studies Discussion forums Synchronous sessions Collaborative synthesis schemes	Professional field Task	CI TIE MORE AP EE CM
Cooperative learning	Teamwork Inverted classroom	Team tasks Team diagrams	Professional field Task	CI MORE EE CM

With the above, we work with each of the 32 subjects of the program, which are divided into three areas of knowledge: Electrical and Electronics, Information Systems and Telecommunications. A summary sheet similar to the one shown in Table 7 is created for each subject. This includes learning objectives, academic activities and significant learning.

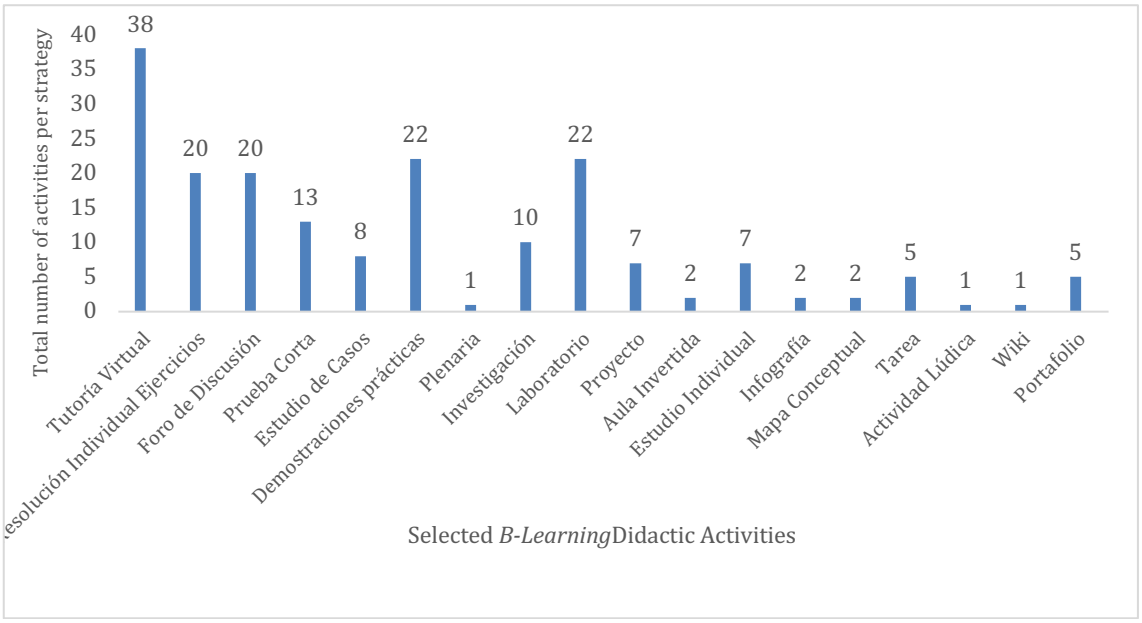
Table 7
Example summary sheet of the Virtualization Systems course

Name of subject		Virtualization Systems	
Description: In this course the student acquires knowledge of the different types of services for data networks in service virtualization. It also provides the knowledge for the technical skills of the different infrastructures of technologies such as Local Area Networks, Automatic Tranfer Mode, HyperServer, Virtual Desktop and Storage virtual networks. The student demonstrates configuration schemes and cases the competencies to maintain in operation the communications networks in an efficient way in order to increase creativity and innovation in telecommunications engineering at UNED. This will support you to mediate in different disciplinary fields leading groups and work teams. He is an expert in virtualization systems from the access, public or private network, operating system and storage. market applications. Students will make decisions to adjust the best technical decision that fits the solution posed in their service needs and the confidence to develop that achievement.			
General Objective: Assess the differences in virtualization services from their implementation in public or private networks considering the storage access components for different technologies and communication infrastructures.			
Subject		Learning objective	Didactic activity
1.	Virtualization of LANs in communications networks	To propose the type of virtualization required in the data network considering the needs of the organization for the definition of the LAN operating model.	Practical synchronous tutorial on virtual network infrastructure configuration. Laboratory practice of virtualization of network elements from simulator or emulator applications. Individual study of methods and trends in network virtualization. Short research report on current methods of network virtualization.
2.	Virtualization of services for public ATM networks	Deduce the virtualization applied in public ATM networks under mechanisms such as circuit emulation for the development and provision of services to end users.	Case studies on services provided from ATM networks and their current correspondence. Collaborative discussion forum on legacy ATM techniques in current telecommunications and convergent services.
3.	Server virtualization	Implement virtualization tools in servers establishing their integration to the network for infrastructure optimization	Demonstrative synchronous tutorial on server virtualization with various operating systems and virtualization applications. Laboratory practice of network server virtualization from simulator or emulator applications. Start of virtualized data network design project - Progress 1 Virtualization of network elements.
4.	Desktop virtualization (VDI).	Develop the configuration on servers and computational machines assessing the operational and organizational requirements for the deployment of virtualized desktops.	Laboratory practice of virtualization of desktops associated to a server from simulator or emulator applications. Continuation of virtualized data network design project - Progress 2 Server Virtualization
5.	Storage Area Network (SAN) and VSAN networks	Establish the elements required for storage virtualization, defining the levels of response and availability of this infrastructure to meet performance indicators.	Completion of virtualized data network design project - Progress Final Desktop Virtualization Individual study of SAN virtualization tools. Practical simulation of database backup service configurations using SAN with high availability schemes.
Significant learning - Validates virtualization models and mechanisms in the different components and elements of a data network applying operation concepts and engineering criteria (CI.Av). - Suggests engineering tools and applications for the virtualization and integration of the elements to the telecommunications network (HM.Av).			

Thus, for the subjects in the area of Electrical and Electronics, a total of 186 activities are proposed, a total of 18.6 activities per subject and 18 types of academic activities are proposed. These activities range from those that are evaluated to those that are not evaluated but rather formative, of interaction and collective generation of knowledge through collective learning. Figure 6 shows the summary of the number of academic activities by type of activity for the 10 subjects of the Electrical and Electronics area.

Figure 6

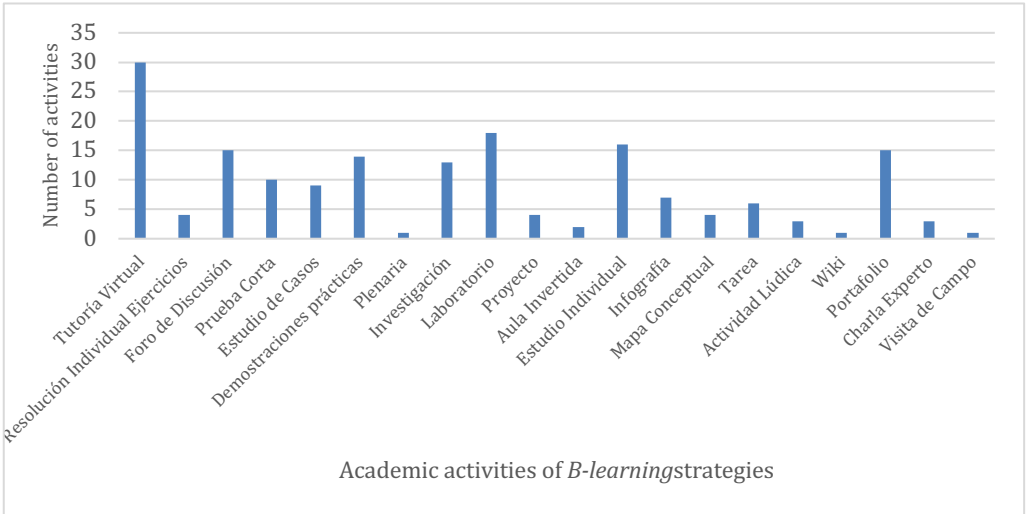
Summary of number of academic activities for the Electrical and Electronics area subjects



In the case of the subjects in the Information Systems area, a total of 176 activities were determined for an average of 19.55 per subject. Figure 7 shows the summary of activities proposed for the subjects of the Information Systems area.

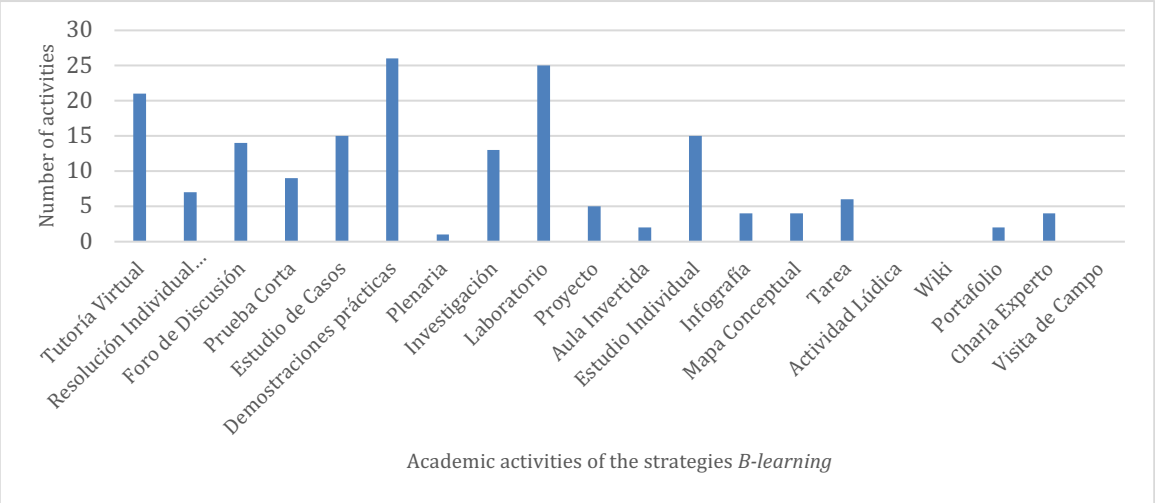
Figure 7

Summary of the number of academic activities for the subjects of the area of Information Systems



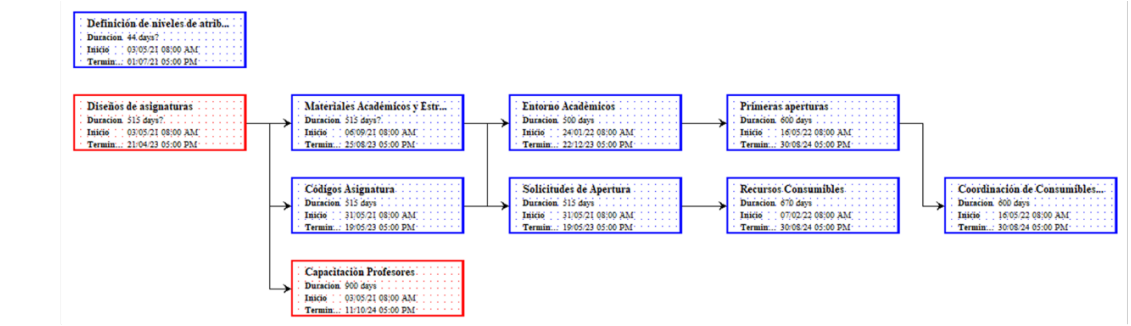
In the case of subjects related to the Telecommunications area, a total of 171 activities were determined, for an average of 17.1 activities per subject and a total of 18 different types of activities. Figure 8 shows the summary of the number of activities proposed by type for the subjects in the Telecommunications area.

Figure 8
Summary of the number of academic activities for the subjects of the Telecommunication area



Once this planning for the academic implementation of *B-learning* was done, we moved on to the operational planning of the process. Based on the above, it was established that each subject requires at least one year of planning, and therefore it was decided to work on the opening of the subjects in a gradual manner per quarter of each year. With this in mind, a work plan was drawn up for the period from 2021 to 2023, as shown in Figure 9.

Figure 9
Project Gantt Chart



	Nombre	Duracion	Inicio	Terminado	Predecesores
1	Definición de niveles de atrib	44 days?	03/05/21 08:00 AM	01/07/21 05:00 PM	
2	Diseños de asignaturas	515 days?	03/05/21 08:00 AM	21/04/23 05:00 PM	
3	Materiales Académicos y Estr	515 days?	06/09/21 08:00 AM	25/08/23 05:00 PM	2SS
4	Entorno Académicos	500 days	24/01/22 08:00 AM	22/12/23 05:00 PM	3SS+100 days
5	Primeras aperturas	600 days	16/05/22 08:00 AM	30/08/24 05:00 PM	4SS+80 days
6	Códigos Asignatura	515 days	31/05/21 08:00 AM	19/05/23 05:00 PM	2SS+20 days
7	Solicitudes de Apertura	515 days	31/05/21 08:00 AM	19/05/23 05:00 PM	6SS
8	Recursos Consumibles	670 days	07/02/22 08:00 AM	30/08/24 05:00 PM	2SS+200 days;7SS
9	Coordinación de Consumibles	600 days	16/05/22 08:00 AM	30/08/24 05:00 PM	5SS
10	Capacitación Profesores	900 days	03/05/21 08:00 AM	11/10/24 05:00 PM	2SS

To execute this strategy, a series of roles and responsibilities for the activities were established. This is a necessary result to avoid duplication of functions, to have clarity in the information to be collected and in the roles responsible for each step to be executed. This is shown in Table 8.

Table 8

RACI Matrix for the Implementation Strategy of the B-learning model in the Bachelor's Degree in Telecommunications Engineering

Activity	CC	CE	SA	RC	EE	TT	CR	DE	SP
Definition of attribute levels	RA	RA		C		CI	I	I	
Subject designs	R	RA		AC		A	I	RI	
Academic Materials and B-learning Strategies	R	RA			AC	A	I	I	
Academic Environment	R	RA				A	I	I	AC
First openings	RA	A				A	I	I	CI
Subject Codes	RA	RA	A	AI			I	RI	
Opening Requests	RA	RA	A			A	I	RI	AI
Consumable Resources	RA	RA	A			A	I	RI	
Student Consumables Coordination	RA	RA	A			A	I	I	
Teacher Training	RA	RA	A	C		A	I	I	
Definition of attribute levels	RA	RA		C			I	I	

Note: The RACI model is a responsibility assignment matrix and is used in project management for the following assignments: R is responsible, A is authority, C is consulted and I is informed. The A differs from the R role because it is the one who ultimately has the decision-making authority. When a double letter appears in table 8, it corresponds to the assignment of two roles.

Discussion and conclusions

From the work it is determined that the *B-learning* model is consistent with the distance education model of the university, which is necessary to generate the implementation proposal. The aspects of the role of the student, the teacher, mediation, educational strategies, didactic activities, educational platforms and curricular designs were evaluated.

In all aspects this coherence is demonstrated, for example, in the case of the teacher's role, he/she functions as a mediator rather than as a generator of knowledge, but is part of the group and applies collaborative strategies for such implementation. Table 9 shows the respective consistency analysis.

Table 9
Analysis of the coherence of the B-learning model with the distance education model

Parameter	*B-learning*	Distance education model	Consistency
Student	It is the center of the model. Self-learning and self-regulation	It is the center of the model. Self-learning and self-regulation	✓
Teacher	It provides information, but does not have the predominant role, but has a mixed profile. Is a mediator in the process, monitoring progress and interacting when required	Is a mediator in the process, monitoring progress and interacting when required	✓
Mediation	They are clear guidelines on the processes and procedures to be applied. A number of tools can be used that together provide guidance to the student	It has tools to guide the student: academic orientations, mediations for each activity, schedule of activities, didactic materials.	✓
Educational strategies	Self-study Interactive learning Cooperative and collaborative strategies	Self-study Interactive learning Cooperative and collaborative strategies	✓
Didactic activities	Activities oriented to experiences that allow the student's own interpretation and acquisition of knowledge, but combined with guided and collaborative accompaniment: Inverted classroom, forums, interactive activities, gamification, among others	Didactic and evaluative activities in four components: assignments, tests, professional field and academic production. Activities that encourage self-learning and collaborations among students	✓
Educational platforms	Both physical elements and ICT tools. It includes repositories, laboratory and learning mediation platforms.	Both physical elements and ICT tools. It includes repositories, laboratory and learning mediation platforms.	✓
Curricular designs	Consider learning objectives that favor self-learning and the achievement of significant learning.	Consider learning objectives that favor self-learning and the achievement of significant learning. Apply cognitive models and expected level of learning	✓
Significant learning	It is the final objective sought by the model, being the experiences, skills and competences acquired by the student to apply them in his/her professional life	It is the final objective sought by the model, being the experiences, skills and competences acquired by the student to apply them in his/her professional life	✓

The vision provided by the graduates was that the e-learning model of the Bachelor's Degree added value to their professional training. In addition, they pointed out that they respond to the needs requested by Society 5.0. This value is framed in the following aspects:

- Self-learning and self-motivation: The *B-learning* activities encourage self-learning in the professional that leads to self-motivation in future professionals, which is consistent with the attributes required by the accreditation models.
- Professional field: The activities of the model place the student in the normal actions that an engineer must face, thus generating experiential learning.
- Research and innovation: *B-learning* encourages professionals to continue researching in their field, to go deeper and, since the methods are mediated and not imposed, it generates professionals to propose innovations or to look for methods to solve these problems.
- Social and environmental awareness: The activities and their approach generate social awareness of the professional practice. Therefore, *B-learning* motivates

future professionals to apply what they have developed to society in a sustainable way.

- Soft skills: As *B-learning* applies collaborative and cooperative strategies, students develop their soft skills for teamwork, leadership, respect and tolerance, communication, decision making, factors that are highly valued in today's market

On the other hand, considering the proposed planning, it is demonstrated that the attributes of AAPIA can be achieved even under a *B-learning*model. As mentioned, it has been considered that engineering education can only be conducted under a face-to-face model. Thus, this planning determines that what is relevant is meaningful learning, and if the mediations of the activities are carried out in a concrete manner, such learning is achieved.

Moreover, the *B-learning* model forces the student to be more active in the learning process, not just a passive actor, so he/she is obliged to learn by doing. Under the proposed scheme of activities, where at least one or more activities must be carried out per week of the school period, the process is continuous and the fulfillment of the attributes is visualized.

In addition, considering that the levels of the attributes were not only based on expert judgment, but also by verifying the results of the surveys of employers and graduates, it is possible to determine with satisfaction that at least 80% of the attributes meet the requirements of the market. This detail is important, because while achieving accreditation is an important goal, it is also important that the profile is desired by the market.

While a career must comply with elements of academic quality such as accreditation, it must also satisfy the market. Today, students value both quality and employability, and in the telecommunications field competence will be determined by your skills, level of these and attributes, in addition to knowledge in the field. For this reason, the soft skills issue raised above should also be included, and under the *B-learning* model this is possible.

However, even though the strategy satisfies 80% of what the market expects, the results showed that there is a varied perception between graduates who are employed and what employers mention. Both groups noted the importance of the traits of the engineering person, but their levels vary by technical or business focus depending on the subject.

Finally, this strategy allowed for continuity between the Baccalaureate model and the Bachelor's degree model at the teaching level, which was another expected objective of this solution. Table 10 shows the assessment of the different results of the project as opposed to the indicators of this research.

Table 10

Assessment of the results of the strategy compared to the defined needs and KPI's

Need	Associated KPI	Deliverable	Result
Optimize the current resources of the career for its implementation. Validate the technological platforms and resources of the university and the career for the implementation of the baccalaureate level	Reuse of existing technological platforms at the University Project risk and importance Critical line of the project.	Inventory of university and career educational platforms Schedule Risk analysis Stakeholder study Project RACI matrix	100% reuse of current platforms EMONA TIMS, Labview, Satellite Trainer, GPS, Net Circuit. Project completion time 2 years. High risk project: 50% of major risks. 25% of stakeholders with power or interest in the project.
To propose and demonstrate that the educational model of the UNED allows the application of the *B-learning*model Integrate the *B-learning* model to the Baccalaureate aligned to the university, to the Bachelor's Degree and to the characteristics of the student profile and the expected graduate.	*B-learning* alignment with virtual distance education.	Study of the university model Definition of applicable methods of the university model in *B-learning* and vice versa Identification of attributes and learning at the bachelor's degree level	100% alignment between *B-learning* model and distance education. Total compatibility and integration of activities. Application of the 4 types of *B-learning* strategies in distance and virtual education.
Define significant learning: attributes, digital competencies and knowledge that the graduate must have to respond to market needs.	Significant learning by subject. Alignment of meaningful learning with the market.	Attribute description sheets with levels, learning objectives and significant learning. Definition of learning in the baccalaureate graduation profile	23 significant learning in the graduation profile. 3 to 4 significant learning per subject. 90% consistency between market requirements and what is incorporated in the solution.
Curricular designs of the subjects associated with the educational model of the university and the requirements of the career.	Curricular design of each subject	Curriculum design sheet for each subject	29 curricular designs developed.
Innovate with academic activities in the design of the subjects that make up the curriculum of the Bachelor's Degree.	Didactic activities by subject.	Proposed activities by subject	533 proposed activities, 18.37 activities on average. 24 different types of activities.
Adapt the significant learning of the career to the AAPIA and SINAES accreditation model, with AAPIA priority.	Attributes by subject	Definition of levels and number of attributes per subject	Between 1 and 3 attributes per subject at different levels. High level of compliance in the definition of attributes, activities and learning with respect to the AAPIA model

References

Arana, R. (2020). *Qué es la transformación digital y por qué es necesaria para cualquier negocio*. TTAMDEM digital studio. https://www.ttandem.com/blog/que-es-la-transformacion-digital-y-por-que-es-necesaria-para-cualquier-negocio/

Bartolomé-Piña, A., García-Ruiz, R. y Aguaded, I. (2018). Blended learning: panorama y perspectivas. *Revista Iberoamericana de Educación a Distancia, 21* (1), 33-56. http://dx.doi.org/10.5944/ried.21.1.18842

Corrales-Beltrán, S.H., Rodríguez-Barcénas, G. y Molina-Saenz, D.N. (2018). *B-learning* para la enseñanza del SQL Server en Ingeniería Informática de la Universidad Técnica de Cotopaxi. Informática y sistemas: *Revista de Tecnologías de la Informática y las Comunicaciones. 2* (1), 43-59. https://doi.org/10.33936/isrtic.v2i1.1131

Cortés-Rico, L. (2020). Hacia una sociedad superinteligente. *Sistemas.* (154), 8-12. https://doi.org/10.29236/sistemas.n154a2

García Aretio, L. (2018). Blended learning y la convergencia entre la educación presencial y a distancia. RIED. *Revista Iberoamericana de Educación a Distancia, 21*(1), 9-22. http://dx.doi.org/10.5944/ried.21.1.19683

García Chi, R.I.; Hernández, M.A.; Izaguirre Cárdenas, N.R.; Eguía Álvarez, A. (2019). El proceso *B-learning* en simulación incrementa el nivel de desempeño académico del estudiante de ingeniería. *Revista Teczapic, 5* (2), 8 - 18. https://www.eumed.net/rev/tectzapic/2019/02/proceso-B-learning.html

Hernández-Gómez, A. S., Carro-Pérez, E. H. y Martínez-Trejo, I. (2019). Plataformas digitales en la educación a distancia en México, una alternativa de estudio en comunicación. *Revista de Educación a Distancia (RED), 19*(60). DOI: http://dx.doi.org/10.6018/red/60/07

Jiménez Aragón, L. (2020). *Material guía para especialistas en contenido responsables del diseño curricular de asignatura. Modelo de evaluación de los aprendizajes de carácter sumativo: Componentes y aspectos orientadores*. Programa de Apoyo Curricular y de Evaluación de los Aprendizajes.

López-Collazo, Z. S. (2020). Implementación de la clase invertida en la formación pedagógica de ingenieros en Telecomunicaciones y Electrónica. *Revista Referencia Pedagógica, 8*(1), 147-166. https://rrp.cujae.edu.cu/index.php/rrp/article/view/208/230

Meza-Badilla, E.C., Aguilar-Cordero, J.F., Quesada-Sanchez M.I. y Delgado-Montoya W. (2017). *Atributos de egreso en carreras de Ingeniería: Metodología de evaluación por resultados*. Editorial Tecnológica de Costa Rica.

PRISMA. (2019). *PRISMA TRANSPARENT REPORTING of SYSTEMATIC REVIEWS and META-ANALYSES.* http://prisma-statement.org/prismastatement/flowdiagram.aspx

Oviedo, C y Alfaro, B. (2020, September 16). *UCR aplica plan inédito en el país para integrar la virtualidad.* Semanario Universidad. https://semanariouniversidad.com/universitarias/ucr-aplica-plan-inedito-en-el-pais-para-integrar-la-virtualidad/

Sandoval Carvajal, M.M., Cortés Chavarría, R., Porras Piedra E. y Lizano Madriz, F. (2017). Capítulo 3 ABP desde las trincheras: un caso de estudio en la enseñanza de la Ingeniería de Sistemas. En A. Guerra, F. Rodriguez-Mesa, F. A. González; M. C. Ramírez (Coords), *Aprendizaje basado en problemas y educación en ingeniería: Panorama latinoamericano*. Aalborg Universitetsforlag

Santamaria-Sandoval, J.R. y Chanto-Sánchez, E. (2020). Aplicación de la virtualidad en la enseñanza de la ingeniería: Caso de estudio Ingeniería en Telecomunicaciones en la UNED de Costa Rica. *Revista Technology Inside by CPIC, 5* (5), 96-113.

Terreni, L., Vilanova, G. y Varas, J. (2019). Desarrollo de competencias digitales en propuestas pedagógicas en ambientes mediados. Un caso en educación superior bajo modelo de aula extendida. *Informes científicos técnicos-UNPA. 11*(3), 61-87. http://doi.org/10.22305/ict-unpa.v11.n3.797

Universidad Estatal a Distancia. (2021). *Ingeniería en Telecomunicaciones*. Universidad Estatal a Distancia. https://www.uned.ac.cr/historia

World Federation of Engineering Organization. (2020, October 05). *CFIA Costa Rica becomes a Signatory of the International Engineering Alliance Washington Accord*. https://www.wfeo.org/cfia-costa-rica-becomes-a-signatory-at-the-international-engineering-alliance-washington-accord/

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THE VIRTUAL FORUM AS A DRIVER OF THE LEARNING EXPERIENCE

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Abstract. The expansion of the internet and smartphones today has a strong impact on the democratization of knowledge around the world. And this knowledge, in turn, impacts all human activities, such as learning. The use of technological platforms that support e-learning by students, teachers and academic management is in full transformation. On the one hand, the technological dynamism when developing new functionalities is not always well adapted to pedagogy. And, on the other hand, the need to find an appropriate media language for digital learning. The objective of this research is to analyze the gaps and opportunities in the use of the forum in the virtual learning environment of master's students at the Graduate School of the Technological University of Peru (UTP). The opportunity was detected to contribute to the adaptation of the teacher to the new skills required by information and communication technologies (ICT). The methodology used was mixed quantitative and qualitative with two evaluation instruments. The study allowed to identify opportunities for improvement in the use of the virtual forum as a driver of the learning experience and assess its impact on educational social interaction.

Keywords: virtual forum, learning, distance education, social interaction, pedagogical practice.

EL FORO VIRTUAL COMO IMPULSOR DE LA EXPERIENCIA DE APRENDIZAJE

Resumen. La expansión del internet y de los celulares inteligentes impactan hoy con fuerza en la democratización del conocimiento en el mundo. Y este conocimiento, a su vez, impacta en todas las actividades humanas, como el aprendizaje. El uso de las plataformas tecnológicas que soportan el aprendizaje electrónico, conocido por su nombre en inglés *e-learning* por parte de los alumnos, los profesores y la dirección académica, se encuentra en plena transformación. Por un lado, el dinamismo tecnológico al desarrollar nuevas funcionalidades no siempre bien adaptadas a la pedagogía. Y, por otro, la necesidad de encontrar un lenguaje de medios apropiado para el aprendizaje digital. El objetivo de esta investigación es analizar las brechas y oportunidades en el uso del foro en el entorno del aprendizaje virtual de los estudiantes de maestría de la Escuela de Posgrado de la Universidad Tecnológica del Perú (UTP). Se detectó la oportunidad para contribuir en la adaptación del docente a las nuevas competencias que exigen las tecnologías de la información y de la comunicación (TIC). La metodología empleada fue mixta cuantitativa y cualitativa con dos instrumentos de evaluación. El estudio permitió identificar oportunidades

de mejora en el uso del foro virtual como impulsor de la experiencia de aprendizaje y valorar su impacto en la interacción social educativa.

Palabras clave: foro virtual, aprendizaje, educación a distancia, interacción social, práctica pedagógica.

Introduction

In the 21st century, humanity is facing the COVID 19 pandemic. According to Johns Hopkins University (2020), the impact on people's lives is not only due to the magnitude of the infected population, but also to the millions of deaths worldwide. This virus, which spreads mainly through human-to-human contact, restricted human activities to the maximum with extreme measures of physical distancing.

In these circumstances, the transmission of knowledge at all levels of formal education has been affected, to a large extent, by the prohibition of face-to-face classes, which were replaced by remote, distance or online education.

A new way of teaching and learning in a context of pedagogical, infrastructure and connectivity deficiencies implies a major challenge because it depends on multiple factors, such as teachers' professional training and Internet access. Regarding the effect of COVID-19 in Latin America, the International Labor Organization (2020) states:

> Distance training or *e-learning* through the virtual platforms of institutions is proving to be an extremely useful tool, but it presents its own particular challenges in terms of teacher preparation and Internet accessibility for participants (p. 4).

Among these challenges, pedagogy within the virtual classroom is fundamental and a priority. Noriega and Torres (2011) argue that today's teachers, in addition to knowledge of their specialty, require training in didactics, pedagogy and, above all, in information technologies for virtual management. This challenge is a great opportunity for interaction and interactivity of pedagogy in the virtual classroom. McLuhan's famous phrase, 'the medium is the message', is increasingly valid in view of the various forms of knowledge transmission, depending on the medium used (Roncallo-Dow, 2014).

In the case of master's degree students at the Graduate School of the Universidad Tecnológica del Perú (UTP), the quarantine decreed by the Peruvian government forced an abrupt change from face-to-face to remote classes, through a learning management platform integrated with a videoconferencing platform.

Pedagogy in the virtual classroom is different from the use of information and communication technologies (ICT). They complement the virtual context in the same way that the multimedia projector, blackboard and desks do in traditional face-to-face education. One of the difficulties, in face-to-face and distance classes, is to achieve the participation of all the students; that they express their opinion, debate ideas or ask for clarifications based on the teacher's exposition or their classmates' interventions.

In face-to-face classes, students' verbal participation is limited by the time it would take to listen to everyone's opinions and at the same time fulfill the activities of the course syllabus. On the other hand, the passive participation of students may be a consequence of their fear of failure or simply due to personal shyness.

In this sense, remote education -both synchronous and asynchronous- has advantages over face-to-face education. If a face-to-face forum is understood as a meeting of people who discuss a certain subject, a virtual forum, according to Dockerty (2019), is the exchange of knowledge between people through the Internet.

This study defines virtual forum as the meeting point of opinions of different people, who send and receive comments, located in different places and connected

through the forum module of an LMS*(Learning Management System*). Real-time interaction through an audiovisual collaborative work platform is defined as a chat or conversation of a more informal nature.

For Riggs (2020), it is an effective and efficient tool to obtain the opinion of all students and to promote teacher-student interaction, among the students themselves, and between them and the task. The forum as a component of a comprehensive inclusive learning strategy is cemented by the statement that "people often ask me about my favorite online teaching tool. My answer is always the same: without a doubt, it is the online discussion forums" (Darby, 2020, p. 2).

However, it is necessary to know and systematically monitor whether the educational model is fulfilling its objective, whether there are gaps in the different sequences of instructional design, whether managers supervise the pedagogy in the classroom today more complex due to virtuality and ICTs that impact on the adaptation - both of teachers and students- to the new language of the environment (Rochera *et al.*, 2021).

The innovation that the research provides is based on recommendations for teachers and instructional designers in remote education at the Graduate School of the Universidad Tecnológica del Perú to use, promote and enhance the forum, because the experience of social interaction impacts positively on the satisfaction of the students' learning experience.

It is also interesting to delve into the gaps and opportunities that limit the techno-pedagogical adaptation in online educational practice, such as the context that should be taken into account for the instructional design of the forum, feasible design, development and implementation alternatives for active and collaborative learning, and which learning and assessment objectives can be defined to impact the learning experience.

Unlearning to learn is a great opportunity for interaction and interactivity of pedagogy in the virtual classroom. In this regard, Aparisi (2020) explains:

> We found that interaction will usually be a symmetrical process, between people and strictly social. Interactivity, on the other hand, will be an asymmetric process, where a dialogue is proposed between certain artifacts, whether books, software or activities, and the students (p. 15).

In order to understand the phenomenon of interactivity, Zangara and Sanz (2012) express that there is interactivity in the structure (course design and materials), and there is interaction between people in the dialogue through the mediating activity of technology.

The role of the teacher in virtual education involves acquiring new concepts, applying new procedures and accepting new ways of acting reflected in habits, customs and preconceived ideas in the classroom. Boumadan *et al.* (2020) state that teachers must have good techno-pedagogical training, which allows them to have control in the implementation and innovative experience. For teachers, unlearning to learn is an opportunity to assume that things can be done differently and obtain the same or better results, as pointed out by Rangel and Peñalosa (2013): "a new type of literacy is required, which some authors have agreed to call digital literacy" (p. 11). Another opportunity for the new teacher is to manage learning by putting the learner at the center (González et al *et al*., 2014). It is true that this is a process that involves the efforts of a committed and student-oriented facilitator. As indicated by Llorente (2006), teachers must be able to connect with their students by establishing relationships, clarifying doubts, and encouraging participation.

On the other hand, teaching should be student-centered (Xiaowei and Zhang, 2020; Gonzales *et al*., 2014). Likewise, Darby (2020) mentions six ways to encourage online forums: 1) participate in the discussion, 2) clarify doubts, 3) praise good interventions, 4) clarify misconceptions, 5) guide the discussion toward the learning objective, and 6) strategically manage quantity and timing so that students know the teacher is with them.

About online forum-based (synchronous) learning, Xiaowei and Zhang (2020) argue that it complements traditional learning as it can be divided into sessions that help students proactively complete assignments and avoid plagiarism. In addition, it improves student engagement and motivation, as most believed that their presentation and academic skills could be improved through communication and practice in the online forums.

Wilkins (2002) reveals some advantages of using discussion forums: flexibility of readings and posting comments at any time and place in the world. The asynchronous modality allows for deeper and more critical reflections in the written dialogue. It provides a more relevant experience for introverted students, as they feel more confident doing it online. Despite this, he notes a disadvantage: participants expect an immediate response to their interactions and this can lead to some distress and frustration.

The forum allows for reflection, research and the development of critical thinking by sharing opinions. Ornellas (2007) refers to "reinforcement of learning, knowledge of attitudes towards certain topics, development of social skills and written communication" (p. 2). According to Brown (2015), the forum is a good starting point for feedback, which impacts student performance. The author proposes to acknowledge the student's contribution with a quick response adding content, perspectives or experience and, above all, challenging to continue the conversation. For his part, Birch (2015) offers two techniques: the first, related to instilling social purpose, i.e., the forum is for students to share their experiences and experiences. The second technique uses stimuli to reward punctuality, quality, courtesy and absence of errors.

It must be remembered that each person has his or her own DNA; no two brains are alike and, therefore, no two people express themselves, motivate themselves and learn in the same way. If individuals require different treatment, different students also require educational treatment according to their needs. With these premises in mind, the Universal Design for Learning (UDL) approach, developed by the Center for Applied Special Technology, makes it possible to understand and manage these differences in instructional design. About the SAD, Alba Pastor *et al.* (2011, p. 21), express that "there is no one optimal representation medium for all students; therefore, it is critical to provide multiple options when delivering information."

Belloch (2012) states:

> The ADDIE model is an interactive instructional design (sic) process, where the results of the formative evaluation of each phase can lead the instructional designer (sic) back to any of the previous phases. ADDIE is the basic model of instructional design (sic), as it contains the essential phases of instructional design: analysis, design, development, implementation and evaluation (p. 10).

Reigeluth (2016) highlights two challenges for the roles of teacher and student. On the one hand, that of the creator, facilitator and mentor of the learning experience by the teacher and, on the other hand, that of the hardworking, responsible, autonomous, co-instructor and co-creator student. For their part, Góngora Parra and Martínez Leyet (2012) mention that "learning design models based on constructivist theories are more suitable for the new educational contexts and offer more opportunities to design training actions that enable the achievement of professional competencies" (p. 356). For Sharif and Cho

(2015), the instructional designer is an architect because he/she designs, engineer (teacher) because he/she builds and manages the project by integrating different knowledge into learning strategies or pathways using new information and communication technologies. Its distinguishing features should be flexibility, creativity, collaboration, innovation and adaptation.

Seethamraju (2014) and Castro Méndez *et al.* (2016) highlight virtual forum peer work, and describe an interesting experience on the benefits of discussion forums and peer-to-peer learning to enhance learning, both in a traditional face-to-face and online environment. They conclude that the combined use of discussion forums with the traditional method improves the quality of cognitive learning. Despite this, they highlight the significant workload involved in the creation, monitoring and evaluation of online discussions by faculty, so a design and structure with appropriate faculty workload policies needs to be put in place. In this sense, what Rochera, *et al.* (2021) comment on feedback on student actions is key to the satisfaction levels of a forum discussion.

Harris and Sandor (2007) state that forums motivate students in online learning by encouraging them to take a more active and central role. Wang (2017) argues that designing engaging and progressive problem-solving activities is at the heart of the effective classroom method. In addition, self-reflection and self-assessment activities in the flipped classroom attract participation and social interaction, which, in turn, promotes participation in problem-solving activities. In his research on interactive learning in virtual forums in a postgraduate context, Morales (2017) confirms the necessary role of the teacher in the design and proactivity, as well as the communication style in which the courses are taught, preferably blended courses.

Reichheld (2003) developed the *Net Promoter Score* (NPS) method to measure customer satisfaction with a company's goods or services. It is also an index that correlates the reputation, growth and sustainability of a company's business model over time, as it measures the trend to verify whether the organization is moving in the right direction.

Despite Kristensen and Eskildsen's (2014) criticisms of the NPS model, their position is in contrast to the various studies by Lee (2018), Fisher and Kordupleski (2019), Nakwong *et al.* (2020) and Srirahayu *et al.* (2021), which use NPS to measure satisfaction. Rego *et al.* (2013) clarify that market share is a strong negative predictor of future customer satisfaction. In turn, Otto *et al.* (2020) argue that satisfaction is the *marketing* strategy that best describes firm performance outcomes. What is concrete is that the NPS experience satisfaction measure has not been surpassed or challenged to this day. For example, the U.S. company Qualtrics is an expert in measuring customer experiences such as NPS. Qualtrics services are used by institutions, such as Stanford University - one of the world's leading teaching and research universities - which uses Qualtrics as a standard because of its practicality, convenience and because it allows them to be more productive (https://www.qualtrics.com).

NICE Systems, Inc, co-developer of NPS, systematically publishes a comparison of leading brands by industry. The research behind the *Net Promoter* methodology shows that companies with scores higher than their competitive set grow faster and are more successful (https://www.nice.com/). Customer Guru, a European Community company, provides automated customer satisfaction measurement services using the *Net Promoter System*. According to this company, the average for the education sector is 54. The top universities for them are Wharton School of Business, Harvard Business School and Duke's Fuqua School of Business, each with 51, 41 and 67 NPS points, respectively (https://customer.guru/).

The research has academic-practical relevance because of the results that can be shared with instructional designers, academic managers, teachers and researchers interested in adapting to the new experience of remote education that contribute to the social interaction and satisfaction of the learning experience between teacher and students (Buil *et al.*, 2012).

Method

The study population included male and female master's degree students at the Graduate School of the Universidad Tecnológica del Perú, between 2019 and 2021, over 25 years of age and residents of Peru. The methodology was mixed qualitative and quantitative

Instruments

Instrument 1: Reichheld's NPS (2003). Metric or performance indicator useful for monitoring over time the ability to satisfy and retain students. In practice, it is used to understand how satisfied they are and whether they are promoters or detractors. According to Baehre *et al.* (2021), with this methodology, the forum participants are offered response options from 0 to 10. A detractor is defined as an individual whose rating ranges from 0 to 6 and who was not satisfied with the learning experience. On the other hand, the promoter is the one who rates between 9 and 10, which indicates a high level of satisfaction that even drives and promotes the experience. Neutrals are those who give a rating of 7 and 8 (they are moderately satisfied with the experience). The NPS score is the difference between the score obtained by promoters and detractors. Neutrals are not taken into account in the calculation. NPS score ranges can vary from -100 (all are detractors) to +100 (all are promoters). A rating above 0 is perceived as positive.

The objective of this measurement is to evaluate the perception of satisfaction with the educational experience of participating in the forum and the recommendation of the forum to their colleagues. The survey was anonymous and voluntary, and was conducted virtually synchronously at the end of the last class of each course. Three closed questions were planned: 1) how would you rate your experience in the virtual classroom forum of this course, 2) how likely are you to recommend to your colleagues and friends to go through the same virtual classroom forum experience of this course, and 3) how likely are you to recommend to your colleagues and friends to take this course as it has been combined? Additionally, open-ended questions were used to identify the reasons for each assessment.

Instrument 2: Academic survey addressed to students through a standard questionnaire approved, used and carried out by the Academic Direction of the Graduate School. The objective is to evaluate the course and the teacher in terms of quality and satisfaction. The survey was anonymous and voluntary, and was conducted virtually synchronously on the last day of class of each course. The sample consisted of 491 respondents from the target population who met the formal condition of being registered in certain courses and types of master's degree (see Table 1).

Table 1
Master's degrees, courses and respondents

#	Course	Master's Degree	Quantity	Surveys	%
1	Loyalty and Engagement	Marketing and Commercial Management	6	115	23,42
2	Strategic Direction	Operations and Logistics Management	4	80	16,29
		Project Management	4	80	16,29
3	Competitive Strategies for Changing Times	Project Management	4	65	13,24
4	Strategic Commercial Management	Operations and Logistics Management	3	34	6,92
5	Go Strategy	Business Administration (MBA)	3	57	11,61
		Customer Intelligence	2	30	6,11
6	Customer Relationship Management	Customer Intelligence	2	30	6,11
			28	491	100,00

A total of 28 courses were given, accumulating 560 class hours divided into four-hour weekly sessions (82.28%) and 16-hour weekend sessions on Saturdays and/or Sundays (17.72%). Finally, for the analysis of quantitative and qualitative results, the Excel pivot table and MAXQDA were used, respectively.

Results

The first instrument on the experience and recommendation of the forum showed favorable and positive results; in all three cases the NPS exceeded 50 points, obtaining a weighted average of the three questions of 51.66 (see Table 2).

Table 2
Questions and NPS score

	Questions	NPS	Promoters	Neutrals	Detractors
1	how do you evaluate your experience in the virtual classroom forum of this course?	51,22	58,59	34,04	7,37
2	how likely are you to recommend the same virtual classroom forum experience of this course to your colleagues and friends?	51,22	61,44	28,34	10,22
3	how likely are you to recommend to your colleagues and friends to take this course as it has been combined?	52,44	61,67	29,2	9,13
	Total, weighted	51,66	60,57	30,53	8,90

Note. Own elaboration based on 491 respondents per question

Exploratory analysis of promoter words. After selecting the most frequent words and their combinations, two groups of words and the concepts related to them were identified. The first relates to interaction, sharing ideas and opinions, getting to know each other. The second is linked to the good experience of the virtual forum tool and the methodology used.

When analyzing the reason for their NPS assessment (also called management with promoters), they recognize the good experience and the opportunity to share opinions with peers as an input for meaningful learning. In the open-ended responses, two main reasons were identified: exchange of ideas and methodology, which together account for 54.4%. A second group of reasons is the course, learning, experience and teacher experience, with 37% together.

Exploratory word analysis of neutrals. The analysis identifies a first group that accepts with good aptitude the virtuality due to the circumstances of the pandemic. The second group proposes improvements to the forum, such as increasing interaction, sharing opinions and different points of view with other colleagues. The reason for your NPS rating (also called management with neutrals) consolidates opinions about the good experience and the opportunity to share opinions with peers as input for better learning. In the open-ended responses of neutrals, the first rating is the teaching method (20.6%), contributions of opportunities for improvement (17.4%), recognition of learning achieved (12.9%), interest in greater exchange of ideas in the forum (11.8%), and those who prefer face-to-face classes (10%). Together, these five reasons account for 72.7% of the neutral ratings.

Exploratory analysis of detractors' words. Two groups were identified. The first, related to the acceptance of virtuality, but prefer face-to-face. The second has to do with encouraging interaction, discussion and participation of colleagues in the forum. When analyzing the reason for their NPS rating (also called management with detractors) they highlight the good experience and the opportunity to share opinions with peers for better learning. In the open-ended responses, only 33% of the detractors (8.9% of the total) preferred the face-to-face modality to the remote or online modality.

Analysis of Instrument 1 - NPS Survey by Age Group. The weighted NPS index of instrument 1 was very positive (50.1%); however, there were significant differences between age groups: the older the age group, the rating progressively declined; the younger the age group, the higher the rating. The two youngest age groups, between 25 and 35 years of age, exceed the overall average out of 100 (see Table 3).

Table 3
NPS by age group

Age group	NPS	Promoters	Neutrals	Detractors	%
46 a +	45,66	53,76	38,15	8,09	91,14
36 to 45 years old	48,22	58,70	30,83	10,47	96,25
26 to 35 years old	51,75	58,75	34,24	7,00	103,29
Up to 25 years	60,47	69,77	20,93	9,30	120,70
Total	50,10	58,47	33,15	8,37	100,00

Cross-sectional analysis of instrument 2 - UTP Academic Survey. The results refer to the following four areas: teacher performance, methodology by activities, methodology by resources and overall assessment. The vigesimal score indicates the valuation in each

of the variables evaluated by the academic area of the School. The teacher performance factor obtained an approval rating of 18.05, the methodology by activities, 17.81, the methodology by educational resources 17.97 and, finally, the general evaluation obtained 17.98. In sum, an overall favorable and positive assessment. The results by course show that there are no significant differences (see Table 4).

Table 4

Academic Evaluation Results - UTP Course Summary by Course

	UTP Academic Survey			Weighted evaluation			
	Courses	**#**	**%**	**Teacher performance**	**Course methodology Activities**	**Course Methodology Educational Resources**	**Overall appraisal**
1	Strategic Direction	145	29,53	18,44	18,42	18,40	18,56
2	Competitive Strategies in Times of Change	80	16,29	17,58	17,20	17,38	17,35
3	Strategic Commercial Management	34	6,92	18,10	17,54	18,37	17,74
4	Loyalty and Engagement	115	23,42	17,76	17,91	18,21	18,00
5	Customer Relationship Management	30	6,11	18,50	17,90	18,08	18,45
6	Go Strategy	87	17,72	17,68	17,26	17,17	17,43
Totals		491	100,00	17,99	17,80	17,95	17,97

Note. Surveys of the Graduate School of the Universidad Tecnológica del Perú, 2019-2021.

Opportunities for improvement. Opportunities for improvement refer to: content (31.3%), methodology (35.4%), interaction (10.4%), more hours (14.6%) and better attendance (8.3%). Together, these five reasons account for 100% of the ratings of the opportunities for improvement.

Qualitative analysis of instruments 1 and 2. The percentage distribution of instrument 1 versus instrument 2 is 85.2% and 14.8%, respectively. In the first instrument, 60.8% of the comments were from promoters, 8.7% from detractors and 30.5% neutral. The composition in the second instrument is 80.3% for positive comments and 19.7% for opportunities for improvement (see Table 5).

Table 5
Comment analysis - Instruments 1 and 2

Type	Number of comments	% vs subtotal 1	% vs. total	Instrument
NPS Survey				
Promoters	855	60,80	51,80	1
Detractors	122	8,70	7,40	1
Neutrals	429	30,50	26,00	1
Subtotal 1	1406	100,00	85,20	
UTP Survey				
Positives	196	80,30	11,90	2
Opportunities for improvement	48	19,70	2,90	2
Subtotal 2	244	100,00	14,80	
Total	1650		100,00	1 y 2

Discussion and conclusions

It is possible to affirm that the virtual forum is a positive driver in the satisfaction of the learning experience, because the social interaction that allows sharing ideas and opinions among peers, getting to know each other, receiving feedback from the teacher and consolidating learning is valued favorably and positively. However, the forum is part of the total experience provided by the teacher in terms of the dynamics of the methodology, the theoretical-practical knowledge and the virtual pedagogical experience of the teacher, all of which were highly valued by the respondents. More and better participation of other colleagues in the forum is recognized as an opportunity for improvement.

These results are in agreement with those reported by Wilkins (2002), Harris *et al.* (2007), Zangara and Sanz (2012), Brown (2015), Riggs (2020), Aparisi (2020) and Darby (2020) on interaction as a strictly social symmetric process between people. The virtual forum, whether synchronous or asynchronous, is an eloquent demonstration of this statement, since it is flexible in time and place, allows for deeper reflections and responses with feedback, and promotes collaborative learning. In contrast, the interactivity they also propose is the communication between the user and the digital product, not always created with good training practices.

It is also worth noting what Llorente (2006), Góngora Parra and Martínez Leyet (2012), Rangel and Peñalosa (2013), Seethamraju (2014), Reigeluth (2016), and Morado (2017) state that it takes time to accompany teachers in their digital pedagogical transformation, since it takes time for various reasons, from resistance to change to typical fears of unlearning in order to learn. This coincides with the students' positive assessment of the updating of the teacher's competencies.

Alba Pastor *et al.* (2011) explains that there is no one optimal representation medium for all learners; it is critical to provide multiple options when delivering information. Agree with the need to design a forum with disruptive creative alternatives, but that meets the educational objective as pointed out by Sharif and Cho (2015) and Morales (2017).

However, the research findings show partial agreement with the two techniques of Birch (2015). The first consists of instilling social purpose as a tool for all students to make it their own in solidarity. The second is to provide incentives to reward participation in terms of punctuality, quality or absence of errors.

The position described by Birch (2015) in his first technique responds to a constructivist culture on pedagogy in the classroom, based on stimulating the group's solidarity awareness, fostering the spirit of competition or detecting who should try harder. The second technique not only recognizes that not all students respond to these stimuli because they don't care, don't want to be there, are there out of obligation, or show disinterest in learning. His proposal is clearly a behaviorist one of positive and negative reinforcement. In the Peruvian context, the little participatory, uncompetitive and passive attitude of not very few students is the usual and regular behavior, for which it is necessary to take into account the two currents of thought in accordance with the concept of universal design for learning (UDL).

The findings allow us to affirm that the resulting NPS index is favorable and positive, because it reached 51.66 points above universities of global prestige. The main reason was that the forum allowed the exchange of ideas for better learning. Even for the detractors, the forum was a good tool, although they expected their peers to participate more actively and frequently.

Second, the NPS scores by age group show that the higher the age, the slightly lower the rating. However, this does not imply total dissatisfaction with remote education. In practice, the older age group finds it difficult to adapt to collaborative virtual dynamics; proof of this is the technical support of their own younger peers in the middle of a synchronous class.

Finally, the positive results of the four dimensions evaluated by the same educational institution support that the use of the forum influences the satisfaction of the learning experience.

With regard to the gaps and opportunities in the use of the forum, the following aspects stand out as relevant:

Lack of understanding of the objectives and importance of the forum. A constant reminder is needed about the impact on the final evaluation, either by not participating, by doing it in a mediocre way or by doing it for the sake of compliance.

Resistance to the virtual modality. Although resistance only reached 2.76 points of the total surveyed, it must be accepted that this is a time of generational transition in which it is necessary to support inclusion and reinforce support for students in their virtual adaptation.

Passive participation. Without pretending to generalize, it responds more to personal and Peruvian idiosyncrasies, a situation that is beyond the teacher's responsibility without this meaning a decline in his or her motivational mission.

Interaction. The most valued attribute in the use of the forum is to be able to interact and get to know different points of view from other students because it reinforces knowledge, compares levels of reflection, saves time and encourages debate for better learning based on one's work experience. The frequent practice of written dialogue becomes a habit and, therefore, a natural habit.

Pedagogical complement. The possibility of comprehensive learning, attitudinal as well as conceptual and procedural, is enhanced if design and execution are aligned.

Synergy of styles. Maintaining the combination of constructivist and behaviorist models depends on each group, although teaching practice requires a dose of positive reinforcement and negative reinforcement typical of the behaviorist model.

The didactic strategy. The themes of the forums should be triggers for greater participation. The forum is an excellent pedagogical tool also for the face-to-face modality. In this sense, the subject matter should be creative and diverse, and should minimize the traditional task of copying and pasting the correct answer. In short, it should encourage reflection and critical thinking through memorable impressions that stimulate comparison based on audiovisual stimuli, such as film sequences, the case method, the generation of controversies based on opposing positions, the application of models of analysis of the environment or correlating the conceptual with the application of a personal work practice.

About the context for the instructional design of the forum. Identifying what context, the instructional design of the virtual forum should take into account is essential. From the instruments, such as the master's profile, the specific course, the student directory, the activity prior to the start of the course, the interventions in the first forums and the interactions in class it is possible to identify the context for the initial design, but at the same time adjust details dynamically during the course, even if it is a generic one for several master's degrees.

Limitations

The NPS of the education sector refers to the performance of the university educational center in general and not to an NPS index exclusive to the use of the forum. Despite this, this limitation does not invalidate the study because the rated index alone has a range internationally accepted as good.

The NPS scale may encounter limitations in relation to the rigorousness or generosity of the valuation that different human groups in different regions of the world may have about different concepts.

Continuity proposals

To assess the adaptive capacity of different age groups to the use of ICTs and the impact on their meaningful learning, with particular attention to adults over 50.

To evaluate whether there is any correlation of the results of the international PISA tests conducted by the Organization for Economic Cooperation and Development (OECD). Peru ranked 64th out of 77 countries, with a passive attitude and little capacity for processing and critical reflection.

References

Alba Pastor, C., Sánchez Serano, J., & Zubillaga del Río, A. (2011). *Diseño Universal para el Aprendizaje (DUA). Pautas para su introducción en el currículo.* http://www.educadua.es/doc/dua/dua_pautas_intro_cv.pdf.

Aparisi, L. (2020). *Modelos pedagógicos en la educación virtual*. Universidad Nacional Arturo Jauretche. https://doi.org/10.13140/RG.2.2.20208.81924

Baehre, S., O'Dwyer, M. O'Malley & Lee, N. (2021). The use of Net Promoter Score (NPS) to predict sales growth: insights from an empirical investigation. *Journal of the Academy of Marketing Science, 50,* 67–84. https://doi.org/10.1007/s11747-021-00790-2.

Belloch, C. (2012). *Diseño Instruccional.* Unidad de Tecnológica Educativa de la Universidad de Valencia. https://www.uv.es/bellochc/pedagogia/EVA4.pdf.

Birch, T. (2015). *Techniques to Encourage Continuously Interactive Online Discussions.* https://elearningindustry.com/encourage-continuously-interactive-online-discussions

Boumadan, M., Soto-Varela, R., Ortiz-Padilla, M., & Poyatos-Dorado, C. (2020). What factors determine the value of an online teacher education experience from a teacher's perspective? *Sustainability, 12*(19), 8064. https://doi.org/10.3390/su12198064

Brown, J. (2015). *The ABCs Of High Quality Online Discussions. How to improve online discussions.* https://elearningindustry.com/abcs-high-quality-online-discussions.

Buil, I., Hernández, B., Sesé, F., & Urquizu, Pilar (2012). Los foros de discusión y sus beneficios en la docencia virtual: recomendaciones para un uso eficiente. *INNOVAR. Revista de Ciencias Administrativas y Sociales, 22*(43), 131-143. https://www.redalyc.org/articulo.oa?id=81824123012

Castro Méndez, N., Suárez Cretton, X., & Soto Espinoza, V. (2016). El uso del foro virtual para desarrollar el aprendizaje autorregulado de los estudiantes universitarios. *Innovación Educativa*, *16*(70), 23-41. http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1665-26732016000100023&lng=es&tlng=es.

Darby, F. (2020). *The Secret Weapon of Good Online Teaching: Discussion Forums.* The chronicle of higher education. https://www.chronicle.com/article/the-secret-weapon-of-good-online-teaching-discussion-forums

Dockerty, K. (2019). Developing pre-service teacher knowledge using online forums: supporting confident and competent teaching practices. *Journal of Education*, *45*(4), 1-15. https://doi.org/10.1080/02607476.2019.1639260.

Fisher, N. & Kordupleski, R. (2019). Good and bad market research: A critical review of Net Promoter Score. *Applied Stochastic Models in Business and Industry*, *35*(1), 138-151. https://doi.org/10.1002/asmb.2417

Góngora Parra, Y. & Martínez Leyet, O. L. (2012). Del diseño instruccional al diseño de aprendizaje con aplicación de las tecnologías. *Revista Teoría de la Educación: Educación y Cultura en la Sociedad de la Información, 13*(3), 342-360. https://www.redalyc.org/pdf/2010/201024652016.pdf.

González, J., Cantu, M., & Maldonado, J. (2014). The virtual forums as teaching strategy in the context of Integral Upper Secondary Education Reform in Mexico. In *Decima Tercera Conferencia Iberoamericana en Sistemas, Cibernética e Informática, Undécimo Simposium Iberoamericano en Educación, Cibernética e Informática,* SIECI.

Harris, N. & Sandor, M. (2007). *Developing online discussion forums as student centred peer e-learning environments.*
https://www.researchgate.net/publication/29466076_Developing_online_discussion_forums_as_student_centred_peer_e-learning_environments

Johns Hopkins University. (2020). *Covid 19-Map*. Coronavirus Resource Center. https://coronavirus.jhu.edu/map.html.

Kristensen, K. & Eskildsen, J. (2014). Is the NPS a trustworthy performance measure? *The TQM Journal, 26*(2), 202-214. https://doi.org/10.1108/tqm-03-2011-0021

Lee, S. (2018). *Net promoter score: Using NPS to measure IT customer support satisfaction*. Association for Computing Machinery. https://doi.org/10.1145/3235715.3235752

Llorente, M. (2006). El tutor en *E-learning*: aspectos a tener en cuenta. *Edutec. Revista Electrónica de Tecnología Educativa*, *20,* a060. https://www.edutec.es/revista/index.php/edutec-e/article/view/517

Morado, M. (2017). El acompañamiento tecnopedagógico como alternativa para la apropiación de tecnología en docentes universitarios. *Revista Actualidades*

Investigativas en Educación 17(3), 1-24. https://www.scielo.sa.cr/pdf/aie/v17n3/1409-4703-aie-17-03-00190.pdf

Morales, A. (2017). *Aprendizaje interactivo. Foros virtuales de aprendizaje en un contexto de postgrado* [Tesis doctoral], Universidad de Alcalá. https://dialnet.unirioja.es/servlet/tesis?codigo=158745

Nakwong, P., Muttamara, A., & Soontorn, B. (2020). *NPS better predict online classroom*.

Noriega, L. & Torres, E. (2011). *Aulas Virtuales: ¿Desarrollo pedagógico y didáctico o avance tecnológico?* [Trabajo de Grado], Universidad Militar Nueva Granada. https://repository.unimilitar.edu.co/bitstream/handle/10654/5383/NoriegaFrontadoLuisAntonio2011.pdf?sequence=2&isAllowed=y-

Ornellas, D. (2007). *El uso del foro de discusión virtual en la enseñanza*. Universidad Autónoma de Guadalajara. https://doi.org/10.35362/rie4442226

Organización Internacional del Trabajo. (2020). *El rol de la formación profesional frente a los efectos del COVID 19 en América Latina.* https://www.oitcinterfor.org/publicaciones/oitcinterfornotas/Fp_covid

Otto, A., Szymanski, D., & Varadarajan, R. (2020). Customer satisfaction and firm performance: insights from over a quarter century of empirical research. *Journal of the Academy of Marketing Science, 48*, 543-564. https://doi.org/10.1007/s11747-019-00657-7

Rangel, A. & Peñalosa, A. (2013). Alfabetización digital en docentes de educación superior: construcción y prueba empírica de un instrumento de evaluación. *Píxel-Bit. Revista de Medios y Educación, 43*. https://dialnet.unirioja.es/servlet/articulo?codigo=5769593

Rego, L., Morgan, N., & Fornell, C. (2013). Reexamining the market share-customer satisfaction relationship. *Journal of Marketing, 77*(5), 1-20. https://doi.org/10.1509/jm.09.0363

Reichheld, F. (2003). *The one number you need to grow.* Harvard Business Review. https://hbr.org/2003/12/the-one-number-you-need-to-grow

Reigeluth, C. (2016). Instructional Theory and Technology for the New Paradigm of Education. *Revista de Educación a Distancia, 50*(1a). http://www.um.es/ead/red/50/reigeluth_esp.pdf

Riggs, S. (2020). Student-Centered Remote Teaching: Lessons Learned from Online Education. *EDUCAUSE Review*. https://er.educause.edu/blogs/2020/4/student-centered-remote-teaching-lessons-learned-from-online-education

Rochera, M., Engel, A., & Coll, C. (2021). The effects of teacher' feedback: a case study of an online discussion forum in Higher Education. *RED. Revista Educación a Distancia, 21*(67). http://dx.doi.org/10.6018/red.476901

Roncallo-Dow, S. (2014). Marshall McLuhan. El medio (aún) es el mensaje 50 años después de comprender los medios. *Revista Palabra Clave, 17*(3), 582-588. https://www.redalyc.org/pdf/649/64931834017.pdf

Seethamraju, R. (2014). Effectiveness of Using Online Discussion Forum for Case Study Analysis. *Education Research International*, *2004*. http://dx.doi.org/10.1155/2014/589860

Sharif, A. & Cho, Sunah (2015). Diseñadores instruccionales del siglo XXI: cruzando las brechas perceptuales entre la identidad, práctica, impacto y desarrollo profesional. *RUSC. Universities and Knowledge Society Journal, 12*(3), 72-86. https://www.redalyc.org/pdf/780/78038521006.pdf

Srirahayu, D., Anugrah, E. y Layyinah, K. (2021). Influence of satisfaction and loyalty on Net Promoter Score (NPS) in academic libraries in Indonesia. *Library*

Management, 42(6/7), 325-339. https://doi.org/10.1108/LM-06-2020-0090ISSN01435124

Wang, F. (2017). An exploration of online behaviour engagement and achievement in flipped classroom supported by learning management system. *Computers and Education, 114*, 79-91. https://doi.org/10.1016/j.compedu.2017.06.012

Wilkins, B. (2002). *Facilitating Online Learning: Training ta's to Facilitate Comm* [Proyecto de maestría, Brigham Young University]. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.95.1876&rep=rep1&type=pdf

Xiaowei, K. y Zhang, W. (2020) An experimental case study on forum-based online teaching to improve student's engagement and motivation in higher education. *Interactive Learning Environments*. https://doi.org/10.1080/10494820.2020.1817758

Zangara A. & Sanz, C. (2012). *Aproximaciones al concepto de interactividad educativa*. JAUTI 2012. In *I Jornada de Difusión y Capacitación de Aplicaciones y Usabilidad de la Televisión Digital Interactiva.* Universidad Nacional de La Plata. http://sedici.unlp.edu.ar/bitstream/handle/10915/25943/Documento_completo.pdf?sequence=1

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EFFECTIVE COMMUNICATION MODEL FOR THE DISSEMINATION OF PUBLIC INVESTMENT PROGRAMS AND PROJECTS OF THE DEPARTMENT OF LORETO (PERU)

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Abstract. This investigation has been developed with the general objective of determining an effective communication model for the dissemination of Public Investment Programs and Projects (PIP) of the Department of Loreto, Peru. Theoretically, it was based on effective communication models: empirical - experimental, functionalist and network communication. From the methodological perspective, it was based on a quantitative methodological strategy, at a descriptive level, with a non-experimental, cross-sectional field design, which was supported by surveys applied to the lieutenant governors of the towns located on the borders with Colombia and Brazil. Once the field work was developed, the information was processed, thus generating the descriptive analysis, the discussion of the results and the proposed model. In essence, it was concluded that there are important limitations in the current model of PIP dissemination in the Department of Loreto, weaknesses concerning all elements of communication: dispersed and unprepared senders, uncharacterized receivers, wasted channels, uncoded and non-contextualized messages, unstimulated feedback. In view of which the Model of Effective Communication for the Diffusion of PIPs (MCE-D-PIP) is designed, which proposes the development of a Situational Room for Effective Communication (SSCE-PIP), which allows to enhance the roles of producers, consumers and prosumers of information, through the diversification of channels and a specialized coding of the message, depending on the context: cultural diversity, educational conditions, technological factors, among others.

Key words: Effective communication, dissemination, programs and projects, public investment, communication models.

MODELO DE COMUNICACIÓN EFECTIVA PARA LA DIFUSIÓN DE LOS PROGRAMAS Y PROYECTOS DE INVERSIÓN PÚBLICA DEL DEPARTAMENTO DE LORETO (PERÚ)

Resumen. Esta investigación ha sido desarrollada con el objetivo general de determinar un modelo de comunicación efectiva para la difusión de los Programas y Proyectos de Inversión Pública (PIP) del Departamento de Loreto, que ocupa la tercera parte del territorio del Perú, y, dadas sus características geográficas, existe mucha influencia cultural de Colombia y Brasil. Desde la perspectiva metodológica, se basó en un enfoque cuantitativo, de nivel descriptivo, con un diseño de campo, no experimental, transversal, que se apoyó en encuestas aplicadas a los tenientes gobernadores de los poblados ubicados en las fronteras con Colombia y Brasil. Una vez desarrollado el trabajo de campo, se realizó el procesamiento de la información, generando así el análisis descriptivo, la discusión de los resultados y la propuesta de modelo. En esencia, se llegó a la conclusión de que existen importantes limitaciones en el modelo actual de difusión de los PIP en el Departamento de Loreto, debilidades concernientes a todos los elementos de la comunicación: emisores dispersos y no preparados, receptores no caracterizados, canales desaprovechados, mensajes no codificados ni contextualizados, retroalimentación no estimulada. En vista de lo cual se diseña un Modelo de Comunicación Efectiva para la Difusión de los PIP (MCE-D-PIP) que plantea el desarrollo de una Sala Situacional de Comunicación Efectiva (SSCE– PIP), que permita potenciar los roles de productores, consumidores y prosumidores de la información, mediante la diversificación de los canales y una especializada codificación del mensaje, en función del contexto: diversidad cultural, condiciones educativas, factores tecnológicos, entre otros.

Palabras clave: Comunicación efectiva, difusión, programas y proyectos, inversión pública, modelos de comunicación.

Introduction

Public investment refers to government spending on economic infrastructure such as airports, roads, railroads, water and sewage systems, electricity and gas utilities, telecommunications and social infrastructure such as schools, hospitals and prisons (IMF, 2015). Therefore, public investment is considered a key element in the development of countries, especially to consolidate the economic and social infrastructure necessary for their growth.

In this context, the operational effectiveness of the formal governance framework for public investment management must be a major priority. Among other issues, it is critical to introduce best practices for conducting and prioritizing project selection (Plan, Jordan Economic Growth, 2018).

Also, given that a large part of the investment is financed with public funds, there is a clear need to inform the public about the main results, to allow interested persons to follow the ongoing developments and form their own opinion based on solid facts and real, objective data. The process of informing requires, then, communication and, in turn, it is ideal for this to be effective, so it is relevant, for effective dissemination, to match the media with the message and the needs of the audience.

The PIPs are aimed at improving the production capacity of public goods or services, as well as providing training, technology transfer and technical assistance in productive projects to all districts and localities in the country, especially those areas classified as poor. However, it is necessary to adopt a method that works for the target audience and for the type of content to be delivered.

In Peru there are areas with a high potential for productive activity (agriculture, livestock, fishing and others), but in terms of public services or infrastructure, there are deficiencies that limit the social welfare of its citizens, an example of which is the Department of Loreto, which is part of the Peruvian Amazon, which occupies almost 29% of the national territory. Also, unfulfilled promises in the past or poor management may have left a legacy of distrust.

The Department of Loreto presents economic characteristics that peculiarly define its behavior with respect to other regions or localities in the country and, therefore, the interest of public investment (Office of Information Management and Statistics of the Congress of the Republic, 2019). In this sense, the PIPs seek to counteract these shortcomings and it is important to disseminate the achievements for the recognition of the beneficiary regions.

According to Mea, et al. (2016) dissemination actions should be aimed at well-defined audiences, and their relevance lies in the fact that the results of a project may be of interest to the general public, but also to specialists and high-level policy makers.

For the authors, this audience needs to be informed about the project, its progress, its results, its products and its legacy. However, to disseminate something effectively, in any context, and to evaluate the success of that dissemination, you must first be clear about what you are trying to achieve.

In this regard, it is important to consider the Department of Loreto, since it has infrastructure deficiencies. For example, inadequate access roads and land communication, and, considering that a large part of its geographic extension is riverine, this results in poor accessibility and integration of the department into the dynamics of the national economy. Likewise, more than half of the towns in the Department of Loreto have communications (telephony, cable and Internet), while the rest of the towns do not have access to media or do not have these services, in addition to not having electricity, or, in any case, only receive it for hours at a time. It is not easy to access an Internet network, and if these populations have access to it, the data transfer is very slow or insufficient.

The benefit of effective communication that links transparency in the management of state institutions and citizens' access to information and the exercise of monitoring, control and evaluation practices of government actions is evident, in order to promote the efficient use of public funds allocated to public investment.

Common difficulties encountered during dissemination to different target groups include information sharing between projects, involvement of local stakeholders and open access.

Author Hargie (2016) refers that he has conducted research and operational audits in a wide range of public and private sector organizations in several countries, obtaining that the main essence of what is most valued by staff is communication. Also, the first and most important factor is having an effective line manager, which is a benchmark measure, as it is a central indicator of effective communication throughout the organization. If employees value their hierarchical superior very positively, they value the organization very positively.

From this reality, it is necessary to answer the following research questions:

what effective communication model can be defined for the dissemination of Public Investment Programs and Projects for the Department of Loreto, Peru?

what is the current situation regarding the dissemination of public investment programs and projects in the Department of Loreto, Peru?

what are the informational needs that the communication model selected for the Department of Loreto Peru would respond to?

what are the elements of the communication model for the dissemination of public investment programs and projects in the Department of Loreto, Peru?

what are the public investment programs and projects carried out in the Department of Loreto, Peru?

what benefits would the selected communication model generate in the development of public investment programs and projects in the Department of Loreto, Peru?

Theoretical framework

This study is based on the theory of effective communication, the conceptualization of public investment programs and projects, and the characterization of the Department of Loreto, officially considered the largest region of Peru in terms of geographic extension, occupying 38% of the country's border with Colombia and Brazil.

The theory of effective communication in the cross-cultural workgroup describes how culture and cultural diversity influence workgroup communication and, subsequently, how communication affects group outcomes. The theory suggests that situational characteristics, the composition of the group as homogeneous or heterogeneous, and cultural and individual characteristics affect the likelihood that a group will have effective communication. The relationship of situation, composition, and individual factors can be complex in determining whether a group will have effective communication (Oetzel, 2017).

The theory reviewed identifies four communication processes that comprise effective communication: (a) equitable participation, (b) consensus decision-making, (c) cooperative conflict, and (d) respectful communication. Equal participation refers to a relatively even distribution of turns among group members. Consensus decision making focuses on the commitment and general agreement with the decisions made by the group. Cooperative conflict includes the collaborative management of conflict when it arises in the group. And respectful communication includes listening and dialoguing in a way that values and appreciates others, even when there are differences of opinion (Oetzel, 2017).

Effective communication is associated with a core aspect of the communication process, which is the satisfaction of the informational needs that the subjects involved may present. In terms of informational needs, it should be noted that these include the individual's own needs, such as the basic or physiological needs of hunger, thirst, sleep, among others, as well as those of protection or security, or of fulfillment, on a higher scale.

On informational needs there are several authors who have produced research from different disciplinary approaches, however, for the purposes of this research, it is considered that the author Calva (2004) makes a significant, accurate and timely contribution to the analysis of information needs through his book entitled "Las necesidades de información. Theoretical foundations and methods", where he explains that informational needs arise in people from a dissatisfaction originated by (a) "The lack of some knowledge or information about a phenomenon, object, or to solve a problem", (b) "The influence of an environment (social, political, scientific, etc.)" and (c) "The particular characteristics (experience, previous knowledge, etc.) that the subject has, since they also influence the appearance of a need for information" (p.76).

Regarding the elements of communication, this research takes into account the Network Communication Model, which is based on the current context of the network-Internet in the information society, where individuals interact in multiple and diverse sources or media that

offer messages of different contents directed to a heterogeneous population with complex profiles.

Research that addresses networks in the subject of communication, according to Marulanda (2015, p. 39), maintains the key elements of the communicative process and adjusts the essential aspects that make up a network such as users or interaction nodes. Thus, the following are found: transmitter, receiver, flow, orientation, effects, and channel.

Regarding the benefits of effective communication, Hargie (2016) indicates a range of considerable benefits at the organizational level, such as higher productivity, higher quality of services and products, higher levels of trust, greater commitment, higher levels of creativity, and higher job satisfaction. It also improves labor relations, increases acceptance of change, reduces absenteeism and staff turnover.

So its relevance lies in the fact that the flow of effective communication develops strong bonds between those who apply it. However, there are many obstacles in the practice of effective communication, so this becomes a major obstacle to effective communication strategies. It is not the responsibility of any one person, it is a team effort with organizational help or support and is an essential area of research for the development of the organizational goal for a rapidly changing era.

In the development of societies, especially in relation to the well-being and quality of life of citizens, public investment is a vital tool in the fight against social inequalities. The role of the State, at all levels, should be oriented towards the design, execution and evaluation of public investment programs and projects, aimed at satisfying needs.

Public investment refers to government spending on economic infrastructure such as airports, roads, railroads, water and sewage systems, electricity and gas utilities, telecommunications and social infrastructure such as schools, hospitals and prisons (IMF, 2015).

The term "public investment" is also sometimes used by governments in a broader sense to refer to spending on human capital, such as education and health spending, or financial investments by government institutions, such as sovereign wealth funds. However, the literature on public investment management focuses on spending related to physical assets (Miller & Mustapha, 2016).

The PIP formulation and development process is called the Project Cycle, which consists of a sequence of steps or stages that must be followed in every instance, namely: pre-investment, investment and post-investment. Each of these stages must be in accordance with the principles of the National Public Investment System.

Regarding the dissemination of information, the following elements must be considered: what type of information is to be transmitted, to whom it is addressed or with whom I wish to share it (user-consumer profile), what is the systematization of the messages I wish to transmit in terms of frequency, tone and form (format), what are the security criteria, what are the policies for response and treatment of information, what are the media to be used to transmit the information (Hutt, 2012).

For geographic purposes, the Loreto Region is known as the Department of Loreto. In this section, this term will be used to describe the characteristics of Peru's largest geographic region: Loreto.

According to information provided by the Information and Statistics Management Office of the Congress of the Republic (2019) and the Central Reserve Bank of Peru (2018):

> The department of Loreto occupies an area of 368,852 km2, which represents 28.7 percent of the national territory, placing it in first place in the ranking of departmental extension; it is also located in the extreme northeastern part of the Peruvian territory. Loreto has 3,891 kilometers of international borders with three countries: Ecuador to the northwest, Colombia to the northeast and Brazil to the east.

This border extension represents 38 percent of the country's total border, receiving cultural irradiation from neighboring localities such as Leticia (Colombia) and Tabatinga (Brazil). It is also divided into 8 provinces and 53 districts, in which 705 of the 1,786 indigenous communities nationwide are located (p.5).

Loreto is divided into 8 provinces. Requena, Maynas, Ramon Castilla, Putumayo, Loreto Nauta, Ucayali, Alto Amazonas and Datem Del Marañon. These 8 provinces are home to 53 districts (Banco de Reserva del Perú, 2018).

In addition, the territory of Loreto belongs to the so-called "Amazonian plain", whose lowest altitude is 61 meters above sea level, and the highest is 220 meters above sea level, where two types of terrain can be distinguished: alluvial and hilly.

Other geographic aspects that can be highlighted in Loreto, and that is part of its characterization, have to do with its natural resources, among which the flora, fauna and hydrography stand out. These characteristics are explained in the Regional Information System for Decision Making (SIRTOD, 2020) of the National Institute of Statistics (INEI) of Peru:

- Flora: consists of several botanical species, including timber trees and other species of commercial and medicinal value, including willows, palms, mahogany, cedar, chestnut, walnut, camphor and matapalo.
- Fauna: In this department there is a variety of wild species, among which we can highlight: lizards, otorongos, boas, anacondas, peccaries, sachavacas, deer, ronsocos, monkeys, sloths, turtles, taricayas, parrots, red bufeos. It is important to note that there are also endangered species such as jaguars, black lizards, manatees, various river turtles, river otters, scarlet macaws, pink dolphins, and paiches.
- Hydrography: Loreto has a hydrographic system composed of a variety of rivers, among which the Amazon, Ucayali, Marañon, and Huallaga are the main ones. There are also the Nanay, Itaya, Ampiyacu, Morona, Pastaza, Tigre, Napo, Putumayo, Yavari, and Cochiquinas rivers.

Method

The present research is framed within the quantitative approach, of descriptive type, which has used as social research techniques the survey, which was applied to 53 lieutenant governors. The instrument was derived from the following operationalization of variables:

Table 1
Operationalization of variables

Variable	Dimension	Indicators
	Information needs	Use and usefulness of the information. Manifestation of need. Information content. Position in time. Collective or specific nature.
Effective communication	Elements	Emitter-producer. Receiver-consumer. Flow - message. Orientation: technique and context. Channel. Effects-feedback.
	Benefits	Satisfaction of needs. Participation of the subjects. Transparency in management.
	PIP Phases	Pre-investment. Investment. Post investment.
Public Investment Programs and Projects	Dissemination of information	Type of information to be disseminated. User-consumer profile. Format of the information. Safety criteria. Response and treatment policies of the information. Media or channels.

Note. This operationalization of variables is the result of the theoretical framework approach

The hypotheses formulated, which were answered in this research work, are presented below:

Main hypothesis: The definition of an effective communication model will allow the dissemination of Public Investment Programs and Projects for the Department of Loreto, Peru.

Secondary hypothesis 1: The dissemination of public investment programs and projects in the Department of Loreto, Peru, is poorly developed.

Secondary hypothesis 2: The informational needs of the citizens of the Department of Loreto Peru are met in the effective communication model.

Secondary hypothesis 3: The elements of the communication model are effectively integrated for the dissemination of public investment programs and projects in the Department of Loreto, Peru.

Secondary hypothesis 4: The public investment programs and projects developed in the Department of Loreto, Peru, respond to the needs of the community.

Instruments

In the present investigation, the survey technique and the questionnaire instrument were used. The survey technique, according to Palella & Martins (2012), aims to obtain data from several people whose opinions are of interest to the researcher. For Hernández et al (2014), the questionnaire is a "set of questions regarding one or more variables to be measured" (p. 217).

For the purposes of this research, a questionnaire was designed to collect information on the variables under analysis, namely, effective communication and public investment programs and projects. For the first variable, a total of 43 items were defined, while for the second variable, 27 items were elaborated, for an overall total of 70 items.

The questions were constructed following the parameter of closed-ended items, that is, questions that "contain previously delimited response options" (Hernández et al, 2014, p.217), which are usually easier to code and analyze. The selected response options correspond to the Likert scale ofthe selected options correspond to the Likert Scale of: never, rarely, sometimes, almost always, and always.

The data collection instrument designed for the collection of information in the present research was submitted to the validity and reliability of three (3) experts in the area of theoretical knowledge and research methodology, who gave their favorable judgment on the validity of the instrument, considering its theoretical and methodological construct and general aspects, such as writing, spelling and internal coherence.

The reliability of the data collection instrument of this research was very high, which shows that it is reliable, that is, that the items allow measuring the study variables adequately and without errors.

To establish the reliability of the instruments to be applied in this research, a pilot test was conducted on subjects with similar characteristics to the population and/or units of analysis of the research.

Once the information was collected through the selected instruments, the findings were interpreted, analyzed and discussed, which explain the reality of the object studied.

Thus, the information gathered in this research was treated statistically, using the descriptive and inferential technique, using the statistical program SPSS Version 26, presenting the data obtained through tables, where frequencies and percentages are interpreted, thus using descriptive statistics. Descriptive and inferential statistics are used to analyze the data. This includes calculating the results for a population (or sample), as well as assessing the significance of the results (Håkansson, 2013).

Results

Table 2
Frequency distribution of the variable effective communication

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Under	16	30,2	30,2	30,2
	Medium	37	69,8	69,8	100,0
	Total	53	100,0	100,0	

Note. As can be seen, 69.8% of the respondents considered that effective communication for the dissemination of public investment programs and projects in the Department of Loreto is at a medium level. While 30.2% are at a low level.

Table 3
Frequency distribution of the information needs dimension

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Under	14	26,4	26,4	26,4
	Medium	39	73,6	73,6	100,0
	Total	53	100,0	100,0	

Note. It can be seen that 73, 6 % of the respondents considered that the informational needs for effective communication are at a medium level. While 26.4% are at a low level.

Table 4
Frequency distribution of the elements dimension

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Under	16	30,2	30,2	30,2
	Medium	37	69,8	69,8	100,0
	Total	53	100,0	100,0	

Note. Regarding the elements dimension, 69.8% of the respondents reported an average level. Meanwhile, for 30.2% it is at a low level.

Table 5
Frequency distribution of the benefits dimension

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Under	25	47,2	47,2	47,2
	Medium	28	52,8	52,8	100,0
	Total	53	100,0	100,0	

Note. It can be seen that the majority of respondents consider the benefits dimension to be at a medium level (52.8%) while another part considers it to be at a low level (47.2%).

Table 6
Frequency distribution of the dissemination of information dimension

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Under	20	37,7	37,7	37,7
	Medium	33	62,3	62,3	100,0
	Total	53	100,0	100,0	

Note. As for the information dissemination dimension, 62.3% is at a medium level. While 37.7% consider it to be at a low level.

Discussion and conclusions

The results show the behavior of the variables studied, based on their respective dimensions and indicators. In this section, these results are contrasted with the theoretical and conceptual approaches on which this research is based.

These are focused on describing the Public Investment Programs and Projects (PIP) being carried out in the Department of Loreto, diagnosing the current situation of their dissemination, as well as establishing the informational needs in this regard, with a view to defining an effective communication model, while estimating their potential benefits. Consequently, it is necessary to introduce this discussion of the results by addressing the dimensions that define effective communication, namely:

Within the assessment of the context is the reference to the informational needs of the subjects involved, i.e. citizens, political representatives and leaders, interest groups, private organizations, public agencies and others. In its analysis, indicators such as the use or usefulness of the information, manifestation of these needs, content of the information, position in time and its collective or specific nature have been considered.

The predominance of an average rating in 73.6% of those interviewed and a low rating in 26.4% is an indication that, regardless of effectiveness, timeliness or good management of public funds, Loreto's society has not had effective access to information related to such management, to sufficient information to participate, give their opinion, make their own decisions, organize themselves or properly assess (at least) what the State does with the economic resources available to them.

Another dimension of effective communication is related to the elements that define it, namely: sender-producer, receiver-consumer, flow-message, technical orientation-context,

channel and effects-feedback (Santos, 2012 and Vera, 2014). Each of these elements are linked in a cyclical and interactive system, playing an essential role in the achievement of the communication objectives.

Considering that the purpose of this research is connected to the construction of an effective communication model for the dissemination of PIPs, it is necessary to move towards a dynamic and well-meshed articulation of these communication elements. According to the results of this study conducted in the Department of Loreto, these elements, as a whole and in their effectiveness, have a medium (69.8%) and low (30.2%) valuation, which constitutes a weakness for the achievement of effective communication.

For its part, the sender-producer, in the research context, is mainly represented by the entities that manage public investment for the development of programs and projects aimed at solving social, economic, technological, cultural, environmental and/or any other type of problems that affect the community, although citizens also become sender-producers by assuming an active participation in the communicative process.

A third dimension of effective communication has to do with the benefits it offers in terms of satisfying informational needs, subject participation and transparency in the management of public investment, a dimension that, as a whole, was rated as average by 52.8% of the respondents and low by 47.2% of the sample. Although in comparison with the previous dimensions, benefits have a better valuation among the lieutenant governors of the towns that make up the Department of Loreto, it could be said that their rating is still negative, considering that the positive perceptions are not statistically significant.

If one starts from the fact that effective communication entails a set of organizational benefits (such as improved levels of productivity, quality, trust, commitment, creativity and job satisfaction) (Hargie, 2016), if the communication and dissemination policy of the PIPs does not result in an upturn in such levels, it cannot be considered effective.

As for the Public Investment Programs and Projects (PIP) variable, essentially two dimensions have been studied: Phases and Information Dissemination, with the purpose of specifying the way in which the communication strategies implemented by the State entities responsible for the management of these programs and projects address the need to disseminate information in each of their phases: pre-investment, investment and post-investment; as well as the way in which they address the type, format and content of the information, the profile of the consumer (receiver), the media used and the policies of response or treatment of the information.

Based on the data obtained in this research, it has been determined that the lieutenant governors of the towns of the Department of Loreto, for the most part (84.91%), express an average evaluation with respect to the dissemination of information on the phases of the PIPs, which means that there are limitations in the communication processes among the subjects involved.

With regard to the dimension of dissemination of information related to PIPs, which includes indicators such as type and format of information, consumer profile, safety criteria, response policies and treatment of information and media or channels used, this is an essential aspect that allows us to know the current status and potential for effective communication in this field.

According to Magdalinou, et al. (2019), in this context, the benefits generated by the knowledge of PIP products by the key audience are expressed in the opportunity for the community to evaluate the relevance and usefulness of the content disseminated. Consequently, the construction of an effective communication model for the dissemination of the PIPs in the

Department of Loreto requires the development of mechanisms and strategies that allow timely and sufficient attention to each of the elements of communication.

In this regard, it is necessary to overcome certain barriers that are manifested in an average (62.3%) and low (37.7%) evaluation of this dimension by the lieutenant governors of the towns in this department, which probably indicates that the management of information, channels, parameters and policies are not adapted to the fulfillment of the communication objectives.

Proposed solution: Dissemination of Public Investment Programs and Projects: Identification of constraints and demands

The results obtained show significant limitations in terms of communication strategies and, specifically, in terms of the dissemination of Public Investment Programs and Projects (PIPs) at all stages.

The purpose of disseminating this information is to democratize information, promote transparent public management and stimulate the active participation of citizens in decision making and social control, evidently in the Department of Loreto - Peru.

In that sense, we will explain the purposes of dissemination, its limitations and demands:

First purpose: to inform all stakeholders (internal and external). Among the limitations is the fact that information on the PIPs is not effectively distributed to any of the actors involved. Therefore, the vital presence of all the actors involved, both internal and external (members of the community: citizens or organizations, actors outside the community: private organization or public agency, political-community activist, professional) during the process of design, planning, execution and evaluation of the PIPs is required. Consequently, the demand is focused on the implementation of permanent, updated and useful information dissemination strategies that are efficiently distributed among all members of society, all of whom are interested in learning about the PIPs.

Second purpose: To publicize the benefits that the project brings to the community. Here, the limitations are limited to the type of information to be disseminated on the PIPs, including: benefits, results, budget execution and accounts. The statistical analysis carried out in this study shows that in none of these cases are high levels of information dissemination achieved, so that economic, political and social actors have very limited data on the benefits generated through public investment. Consequently, citizen demand emphasizes the need to know the information related to all public management processes, and the community aspires to have certain and reliable knowledge of all stages of the PIPs, from formulation to evaluation: problems to be solved, solutions provided, projects to be developed, investment to be made, probable social and environmental impact, technical aspects, benefits, responsible parties, processes, execution conditions, progress, results, investment execution, among other data.

Third purpose**:** to generate commitment and participation of stakeholders. With respect to this purpose, both participation and transparency of public investment processes have been evaluated as aspects that have not been effectively stimulated by the current PIP dissemination strategies. The data show that the level of citizen participation in the preparation, execution and control of the PIPs is low, and public access to information on the execution and accountability of the PIPs has been assessed as limited. Therefore, there is a demand for the successful dissemination of the PIPs, which implies promoting the commitment and active participation of citizens and organizations, so it is necessary to stimulate co-responsibility in the decisions and actions aimed at solving the problems of the community, through public investment and, specifically, through the PIPs.

Fourth purpose**:** to know the expectations of the project on the part of the subjects and/or groups involved. Among the limitations, it has been evidenced that in the dissemination of the PIPs, the feedback process and the satisfaction of needs are negative, since there is a low valuation of the interaction between the PIP formulating and executing units and the communities or organizations in the area of influence, which hinders obtaining a solid and reliable knowledge about the expectations of the subjects and/or groups involved regarding the execution and scope of the projects and programs, which are supposed to be oriented to the solution of common problems. In this sense, it is essential to promote communication strategies that seek permanent feedback between the entities that manage the PIPs and the stakeholders involved, whether they are internal or external to the communities. Systems are needed to assess the opinions of citizens, groups and organizations regarding the purposes, processes, progress and results of the PIPs.

The proposed model focuses mainly on the activation of a Situational Room for Effective Communication (SSCE-PIP), which allows the design and implementation of strategies, mechanisms and instruments for the collection, processing, analysis, storage and distribution of information related to public investment programs and projects developed in the Department of Loreto. An effective activation and integration between the elements of communication is contemplated through the following processes:

a) The SSCE-PIP is in charge of developing mechanisms to expedite the transmission of information from the PIP management units, considering that they do not need to process and encode contents to disseminate them to the community, being the room in charge of these processes, which represents an empowerment of the sender-producer of communication. In addition, tools are designed and activated to encourage citizens to also act as issuers-producers of the information required to strengthen PIP management processes.

b) As for the receiver-consumer, who is represented in the group of citizens, community organizations, private organizations, political-community activists, professionals, public agencies and others, with whom an interaction is established that becomes progressively more dynamic, since initially the aim is for the community to have access to information on the PIPs b) As for the receiver-consumer, which is represented by citizens, community organizations, private organizations, political and community activists, professionals, public agencies and others, with whom an interaction is established that becomes progressively more dynamic, since initially it is sought that the community has access to information on the PIPs, and then, later, to strengthen instruments that allow feedback and active participation by citizens in each of the development phases of the projects and programs.

c) This model promotes the use of a wide diversity of communication channels: traditional media (press, radio and television), digital media (web page, e-mail, social networks, among others), as well as collective, participatory and face-to-face media (community diagnoses and assemblies, work tables, meetings, community diagnoses), as each of them offers potential that should be used to achieve the PIP dissemination objectives.

d) The flow - message, context and code are elements that are strengthened by a systematic, rigorous and professional treatment of the information, since the process of codification of the message is effectively produced, the contextual aspects of the region are considered and the data required by each of the users of the community are selected.

e) The feedback effect is strengthened as a process through the MCE-D-PIP, since first the transmission of information from the PIP management entities to the subjects, groups and organizations of the environment is strengthened, and then strategies and mechanisms are established for the generation of responses and participation on the part of the citizenry.

Consequently, the conclusions are based on the answers to each of the specific hypotheses.

Regarding specific hypothesis 1, there is a lack of human talent, technologies and communication strategies about the PIPs, with little identification and knowledge about the recipients of the information. In addition, there are no formal processes for the collection, processing and selection of the information to be disseminated, resulting in limited contextualization and inadequate coding of the message, with the consequent waste of the diversity of communication channels to disseminate the information.

Regarding specific hypothesis 2, the information needs of citizens are not known, so the dissemination of information on the PIPs has not been useful to stimulate participation or social control. Stakeholders express their information needs in relation to the PIPs, which is the basis for the construction of a new dissemination model. There are limitations in the information content on the PIPs to which citizens have had access, the present information needs are not effectively met, nor are future information needs projected, with a predominance of the expression of information needs on the PIPs by individual users, and a low expression of collective consumers.

In relation to specific hypothesis 3, that the elements of the communication model should be effectively integrated for the dissemination of public investment programs and projects in the Department of Loreto, Peru, the Model of Effective Communication for the Dissemination of PIPs (MCE-D-PIP) is necessary, whose objective is to establish timely and satisfactory channels of interaction between citizens and public management entities, favoring the construction of a more positive image on the part of citizens, encouraging greater social control of public investment, and fostering mechanisms for active participation and commitment of the subjects, groups and/or organizations involved.

Regarding specific hypothesis 4, the PIPs have their origin in the prioritization and formulation of problems - needs of the surrounding communities. There is little information on the pre-investment phase that is disseminated to the public. In addition, information on the investment phase is not timely, complete or dynamic, while the dissemination of the PIPs and their post-investment phase does not stimulate social assessment of their results and effects.

Regarding specific hypothesis 5,with the implementation of the proposed Effective Communication Model for the Dissemination of PIPs (MCE-D-PIP), benefits are projected at the level of both senders and receivers.

References

Banco Central de Reserva del Perú (2018). *Caracterización del Departamento de Loreto*. https://www.bcrp.gob.pe/docs/Sucursales/Iquitos/loreto-caracterizacion.pdf

Håkansson, A. (2013). *Portal of research methods and methodologies for research projects and degree projects.* CSREA Press USA. https://www.diva-portal.org/smash/get/diva2:677684/FULLTEXT02.pdf

Hargie, O. (2016). The importance of communication for organisational effectiveness. In Lobo, F. (ed.) *Psicologia do Trabalho e das Organizações.* Axioma.

Hernández, R., Fernández, C., & Baptista, P. (2014). *Metodología de la Investigación*. (6ª ed.). McGraw-Hill.

IMF (2015) *Making public investment more efficient.* International Monetary Fund.

Magdalinou, A., Mantas, J., Montandon, L., Weber, P., & Gallos, P. (2019). Disseminating Research Outputs: The CrowdHEALTH Project. *Acta Informatica Medica*, *27*(5), 348. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7085311/

Marulanda, J. (2015). *La transformación de los modelos de la comunicación en el surgimiento de la sociedad de la información: del modelo de flujo unidireccional a la comunicación descentralizada.* [Doctorate Thesis]. Universitat Autónoma de Barcelona.

Mea, M., Newton, A., Uyarra, M. C., Alonso, C., & Borja, A. (2016). From science to policy and society: enhancing the effectiveness of communication. *Frontiers in Marine Science*, *3*, 168. https://www.frontiersin.org/articles/10.3389/fmars.2016.00168/full

Miller, M., & Mustapha, S. (2016). *Public investment management.* Overseas Development Institute, London. https://www.odi.org/sites/odi.org.uk/files/resource-documents/11064.pdf

Oetzel, J. (2017). Effective intercultural workgroup communication theory. *The International Encyclopedia of Intercultural Communication*, 1-5. https://doi.org/10.1002/9781118783665.ieicc0025

Oficina de Gestión de la Información y Estadística (2019). Carpeta Georeferencial Región Loreto Perú. Dirección General Parlamentaria. En *Congreso de la República*. http://www.congreso.gob.pe/Docs/DGP/GestionInformacionEstadistica/files/i-16-loreto.pdf

Palella, S., & Martins, F. (2012). *Metodología de la investigación cuantitativa.* Fondo Editorial de la Universidad Pedagógica Experimental Libertador.

Plan, Jordan Economic Growth (2018). *Technical Guide For Pre-Selection Of Public Investment Projects.* JEGP

Santos, D. (2012). *Fundamentos de la comunicación*. Red Tercer Milenio. http://www.aliat.org.mx/BibliotecasDigitales/comunicacion/Fundamentos_de_comunicacion.pdf

SIRTOD. (2020). *Características generales: Loreto.* Instituto Nacional de Estadística e Informática. https://systems.inei.gob.pe/SIRTOD/app/caracteristicas

Vera, F. (2014). *Comunicación efectiva. Contenidos Declaratorios.* Manual instruccional,

Universidad de Aconcagua. https://alumnosenfermeriauac2014.files.wordpress.com/2014/04/manual_comunicacion_efectiva_contenidos_declarativos.pdf

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ASSESSMENT OF COMMUNICATION SKILLS IN ENGLISH IN A SAMPLE OF INCOMING UNIVERSITY STUDENTS

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Abstract. The development of communicative competences in English is fundamental for the labour insertion of future professionals. In this cross-sectional study, the communicative competences in English of a representative sample of 114 incoming Dominican university students were assessed using an *ad hoc* instrument based on the Common European Framework of Reference for Languages (CEFR). Communication skills were compared according to the socio-demographic and academic characteristics of the sample. Overall, intermediate levels were identified in reading comprehension, general competence, written production, and grammar and vocabulary; and low levels in oral production and listening comprehension, respectively. Students over 30 years of age had statistically higher levels of proficiency in grammar and vocabulary, those with more than three years of prior training in grammar and vocabulary, and those who reported having lived with English-speaking family members in general proficiency. Female students had higher levels in all communicative competences, although the differences were not significant. In conclusion, it is necessary to intervene as a priority in the communicative competences of oral production and comprehension in incoming university students, as well as to strengthen the domains of written comprehension, general competence, written production and grammar and vocabulary.

Keywords: linguistic competences, communicative competences, teaching, learning, English.

EVALUACIÓN DE LAS COMPETENCIAS COMUNICATIVAS EN INGLÉS EN UNA MUESTRA DE ESTUDIANTES DE NUEVO INGRESO A LA UNIVERSIDAD

Resumen. El desarrollo de competencias comunicativas en inglés es fundamental para la inserción laboral de los futuros profesionales. Este estudio transversal evaluó las competencias comunicativas en inglés de una muestra representativa de 114 estudiantes universitarios dominicanos de nuevo ingreso, a partir de un instrumento *ad hoc* basado en el Marco Común Europeo de Referencias para las Lenguas (MCER). Las competencias comunicativas se compararon según características sociodemográficas y académicas de la

muestra. En general, se identificaron niveles intermedios en comprensión escrita, competencia general, producción escrita y gramática y vocabulario; y bajos en producción oral y comprensión oral, respectivamente. Los estudiantes de más de 30 años obtuvieron niveles estadísticamente más altos en el dominio de gramática y vocabulario, los que tenían más de tres años de formación previa en gramática y vocabulario y los que indicaron haber convivido con familiares de habla inglesa en competencia general. Los estudiantes de género femenino obtuvieron niveles más altos en todas las competencias comunicativas, aunque sin diferencias significativas. En conclusión, es necesario intervenir de forma prioritaria las competencias comunicativas de producción y comprensión oral en los universitarios de nuevo ingreso, así como fortalecer los dominios de comprensión escrita, competencia general, producción escrita y gramática y vocabulario, respectivamente.

Palabras clave: competencias lingüísticas, competencias comunicativas, enseñanza, aprendizaje, inglés.

Introduction

The assessment of communicative competencies is a fundamental process for the teaching and learning of a new language in university students (Bolaños et al., 2021; Borja-Torresano et al., 2020; Cabrera et al., 2020). Recent research has shown that the acquisition of communicative competencies in English is directly associated with the implementation of participatory programs (Gómez and Larenas, 2020; Toala-Alarcón et al., 2019; Uribe et al., 2020) and with the regulation of different communicative competencies (López, 2020; Luna-Hernández, 2016; Nuñez and Deulofeo, 2020). Since 2001, the European Union created the Common European Framework of Reference for Languages (CEFR) as a guide for the design of programs for the study of a given language and to facilitate the development of guidelines (curricula, assessments, tests, manuals and guides) for the learning or acquisition of new languages.

The objectives of the CEFR are to standardize foreign language skills for language learners and for educators who provide foreign language teaching and assessment (Council of Europe, 2017). The general parameters established in this framework serve as a foundation for language teaching and the assessment of the quality of language skills (Nold, 2007). Originally, the CEFR established six levels of language proficiency (A1, A2, B1, B2, C1 and C2), with A1 being the most basic and C2 the highest, with general and specific communicative competencies and their respective subcategories. In its most recent update, it incorporated a new framework, a new pre-A1 level and expanded the description of C1 and C2, in order to adapt to the multilingual needs of international university students. Currently, MERC is one of the main references for defining competencies in foreign language curricula in much of the world (Council of Europe, 2017), with its focus areas having transcendental implications in educational contexts (House, 2003).

According to Chomsky (1968) communicative competencies are the abilities of human beings to speak and create messages. These competencies focus on the grammatical operations that people internalize and which, in turn, are susceptible to activation in the development of their colloquial skills (Messick, 1984). In general, the communicative competencies are composed of three main categories: (1) *linguistic competencies*, which include lexical, phonological, syntactic and other dimensions of language knowledge; (2) *sociolinguistic competencies,* which refer to the sociocultural conventions of language use (politeness rules and norms between generations, sexes, classes and social groups); and (3) *pragmatic competencies*, which refer to the functional use of linguistic resources (production of language functions and speech acts), based on

scenarios of interactional exchanges, and to the mastery of discourse, cohesion and coherence (Council of Europe, 2001).

In competence research, two models are distinguished: *competence structures* and *competence levels* (Klieme et al., 2008). The first model assumes the existence of several aspects of a particular competency and examines the relationship between these aspects and its overall competency, while the second describes several levels of competency that differ qualitatively in terms of the task and its particular level of competency. In the proficiency level model, examinee levels are usually defined by determining thresholds based on scores. These models are not mutually exclusive, as seen in foreign language comprehension, where different aspects of proficiency may exist, such as mastery of aspects of vocabulary and grammar, and where various levels of proficiency may be achieved within each language proficiency (Klieme et al., 2008).

Foreign language learning poses a number of challenges for incoming university students (Moreno & Villafuerte, 2016; Romero et al., 2020). In this regard, Ahdal et al. (2014) pointed out that second language learning is directly conditioned by linguistic and sociological factors. In addition, psychological factors such as motivation, memory, emotion, and personality can affect the process and progress of second language learners (Romero et al., 2020). There is evidence that motivations, baseline knowledge and competencies, as well as more transitory factors such as fatigue or distraction, affect performance and language learning (Ching and Badilla, 2021; Romero et al., 2020). Tagachi (cited in Brooks and Wilson, 2014) highlighted that teachers often prioritize vocabulary and grammar exercises to the detriment of other communicative competencies, hindering a comprehensive mastery of the language (Brown, 2000; Tagle-Ochoa et al., 2020).

Tinjaca and Contreras (2008) mention four barriers to learning English: lack of effective support, monotonous classes, indifference to the learning process, and social embarrassment. Authors such as Von Worde (2003), Turula (2004) and Jones (2004) indicated that language learning is affected by anxiety, feelings of insecurity, nervousness and lack of confidence among university students. Moreover, according to some studies these external factors are associated with public speaking anxiety (Ching and Badilla, 2021; Romero et al., 2020). On this point, Dhanasobhon (2006) highlighted that lack of teacher training and demotivation and lack of opportunities for students are the main factors hindering English language learning.

In this order of ideas, motivation is a central element that favors the successful learning of a new language, and is defined as a set of factors that help to act and have a sense of proper direction (Blaublitz, 2010). There are two types of motivation in language learning: *extrinsic* and *intrinsic* (Oletić and IIic 2014). Extrinsic motivation is driven by rewards external to the students, such as obtaining high scores; and intrinsic motivation, on the other hand, is associated with a self-determined mindset that is expressed through personal self-discipline to learn and is also independent to external rewards (Oletić and IIic 2014). Numerous studies have highlighted that both types of motivation are necessary in learning a new language (Ching & Badilla, 2021; Moreno & Villafuerte, 2016; Romero et al., 2020), so they should be used according to the learning environment and the particular needs of the learners (Young-Shin & Uichol, 1999).

Against this background, it is important to recognize the English language proficiency of university students at the beginning of their studies. The main objective of this research was, therefore, to evaluate the communicative competencies in English of a

representative sample of 114 incoming students at the Universidad Tecnológica de Santiago (UTESA), Dominican Republic, using an *ad hoc* instrument based on the CEFR.

Method

Participants

This cross-sectional study included a sample of incoming students at UTESA (Dominican Republic). After performing a simple random sampling, based on the statistical formula for populations of Fischer and Navarro (1994), it was estimated that 86 new students were required to constitute a representative sample of this population. Finally, the sample consisted of 114 incoming students during the quarters 2020-1 to 2021-2. Figure 1 shows the statistical formula used to calculate the sample size for this study.

Figure 1

Fisher and Navarro's (1994) statistical formula for population estimation

N (tamaño de la población) = 172

Z (variable estándar) = 1,81

P (probabilidad de ocurrencia) = 50%

q (probabilidad de no ocurrencia) = 50%

e (error) = 7%

Z (constante) = 1,81

E (estimación) = 5%

Inclusion criteria were: (1) be enrolled in the 2020-2021 terms, (2) be incoming freshmen to the institution, and (3) earn a 57-point average per quarter. No exclusion criteria were established in this study.

Procedure

Data collection was performed using a Google online form. Participants were recruited by telephone through a list of contacts provided by the institution. Students who agreed to voluntarily participate in the study received by e-mail a general description of the study objectives and a Google online form with the corresponding instructions for filling in all the fields of the questionnaire. The assessment of communicative competencies in English was carried out using a procedure that combined both the responses to the online tests (grammar, vocabulary, reading, writing and listening), administered in the Google form, and in the responses recorded by the researcher during video calls with the participants.

In order to preserve the original responses for the English communication skills assessment, the option to modify the responses of the Google Form after submission was disabled. The response time used to fill out the form varied according to the technology

and language skills of the participants, ranging from two to four hours at a time. This study was approved by the UTESA Research Ethics Committee. The data were treated anonymously and were only used for the purposes of the study, guaranteeing the confidentiality of the participants.

Instrument

The variables of interest were the communicative competencies of grammar and vocabulary, general competence and comprehension and production in English, evaluated in written and oral form. The *ad hoc* instrument used to measure these variables was divided into five sections: (1) collection of descriptive data (gender, age, previous experience with English and living with an English-speaking family); (2) assessment of written comprehension by reading texts and applying multiple choice items; (3) assessment of written production by writing an essay on a topic known to the participants; (4) assessment of oral comprehension by listening to conversations and applying multiple choice items; and (5) assessment of oral production through group dynamics. Thus, since it is an ad hoc instrument, neither content validity nor construct validity is shown; these limitations will be solved in subsequent works.

The scores for each communicative competency were scored according to the original levels established by the CEFR. The *Speaking Test and Score Sheet* was used to measure oral production (interview). *Introductory*questions,*no score value*and*grading scale*were used in this process. The questions were organized according to different levels of difficulty:*starter*,*elementary, pre-intermediate, intermediate, upper intermediate* and *advanced*. This score was adjusted according to the rating scale: unacceptable (0), low (1), acceptable (2) and excellent (3). Finally, the ranking systems of the communicative competencies were, from lowest to highest: A1, A2, B1, B2, C1 and C2.

Data analysis

Sociodemographic and academic data were analyzed using frequencies and percentages. To compare the domains of English communicative competencies according to gender, age ranges, years of English language training, and living with English-speaking family,X^2test analyses were used. Before applying this statistical test, a review of compliance with data normality requirements was performed using the Kolmogorov Smirnov test. The results obtained allowed us to accept the assumption of normality in the distribution of the data. A value of $p < ,05$ was assumed to identify statistically significant differences. Data were analyzed using *Statistical Package for Social Sciences* (SPSS, v26).

Results

Sample characteristics

A total of 114 new students participated, 42 male (36.8%) and 72 female (63.2%), with age ranges between 15 and 50 years old. As shown in Table 1, most of the sample was between 15-20 years old (52.6%), had about one year of previous English language training (34.2%) and had lived with an English-speaking family (59.6%).

Table 1
Descriptive data of the sample

Variables	Sample(*n* = 114)
	n (%)
Genre	
Male	42 (36,8)
Female	72 (63,2)
Age ranges	
15-20 years	60 (52,6)
21-25 years old	35 (30,7)
26-30 years	8 (7,0)
> 30 years	11 (9,7)
Years of English training	
None	31 (26,2)
From 0 to 1 year old	39 (34,2)
From 1 to 2 years	18 (15,8)
From 2 to 3 years old	13 (11,4)
More than 3 years	13 (11,4)
English-speaking family	
Yes	68 (59,6)
No	46 (40,4)

Communication skills in English

47.4% of students showed English proficiency B in grammar and vocabulary, 50.9% in written production, 57.0% in written comprehension, and 52.6% in general proficiency. 60.5% showed an English A level in oral production and 49.1% in oral comprehension. Table 2 presents the communicative competencies in English of the sample.

Table 2
English communicative competencies of the sample

Variables	Sample(*n* = 114) *n* (%)
Grammar vocabulary	
A1	16 (14,04)
A2	27 (23,68)
B1	29 (25,44)
B2	25 (21,93)
C1	11 (9,65)
C2	6 (5,26)
Written production	
A1	20 (17,54)
A2	31 (27,19)
B1	38 (33,33)
B2	20 (17,54)
C1	5 (4,39)
C2	0 (0,00)
Reading comprehension	
A1	7 (6,14)
A2	32 (28,07)
B1	37 (32,46)
B2	28 (24,56)
C1	7 (6,14)
C2	3 (2,63)
Oral production	
A1	27 (23,68)
A2	42 (36,84)
B1	18 (15,79)
B2	12 (10,53)
C1	9 (7,89)
C2	6 (5,26)
Oral comprehension	
A1	23 (20,18)
A2	33 (28,95)
B1	33 (28,95)
B2	20 (17,54)
C1	3 (2,63)
C2	2 (1,75)
General competence	
A1	8 (7,02)

A2	40 (35,09)
B1	50 (43,86)
B2	10 (8,77)
C1	6 (5,26)
C2	0 (0,00)

Table 3

Differences in English communication skills according to gender

	Male ***(n* = 42)** ***n (%)***	**Female** ***(n* = 72)** ***n (%)***	x^2	***p***
Grammar and vocabulary				
A1	8 (19,0)	8 (11,1)	2,85	,72
A2	11 (26,2)	16 (22,2)		
B1	9 (21,4)	20 (27,8)		
B2	9 (21,4)	16 (22,2)		
C1	4 (9,5)	7 (9,7)		
C2	1 (2,4)	5 (6,9)		
Written production				
A1	11 (26,2)	9 (12,5)	6,76	,15
A2	9 (21,4)	22 (30,6)		
B1	11 (26,2)	27 (37,5)		
B2	10 (23,8)	10 (13,9)		
C1	1 (2,4)	4 (5,6)		
C2	0 (0,0)	0 (0,0)		
Reading comprehension				
A1	3 (7,1)	4 (5,6)	4,50	,48
A2	13 (31,0)	19 (26,4)		
B1	16 (38,1)	21 (29,2)		
B2	7 (16,7)	21 (29,2)		
C1	3 (7,1)	4 (5,6)		
C2	0 (0,0)	3 (4,2)		
Oral production				
A1	12 (28,6)	15 (20,8)	1,77	,88
A2	15 (35,7)	27 (37,5)		
B1	6 (14,3)	12 (16,7)		
B2	5 (11,9)	7 (9,7)		
C1	2 (4,8)	7 (9,7)		
C2	2 (4,8)	4 (5,6)		
Oral comprehension				
A1	9 (21,4)	14 (19,4)	3,18	,67
A2	13 (31,0)	20 (27,8)		
B1	13 (31,0)	20 (27,8)		

B2	7 (16,7)	13 (18,1)		
C1	0 (0,0)	3 (4,2)		
C2	0 (0,0)	2 (2,8)		
General competence				
	Male	Female		
A1	4 (9,5)	4 (5,6)	4,80	,31
A2	19 (45,2)	21 (29,2)		
B1	15 (35,7)	35 (48,6)		
B2	3 (7,1)	7 (9,7)		
C1	1 (2,4)	5 (6,9)		
C2	0 (0,0)	0 (0,0)		

Table 4 shows that participants aged 30+ showed higher levels of English C proficiency than those aged 26-30, 21-25 and 15-20 in grammar and vocabulary (27.3% vs. 0.0%, 14.3% and 15.0%), reading comprehension (18.2% vs. 12.5%, 2.9% and 10.0%), written production (9.1% vs. 0.0%, 2.9% and 5.0%) and oral comprehension (9.1% vs. 0.0%, 0.0% and 6.7%), respectively. However, the only statistically significant difference was identified in the grammar and vocabulary domain*(p* = ,04, ^{X2} = 25.66). Those aged 15-20 reported higher levels of English C proficiency than those aged 30+, 26-30 and 21-25 in oral production (18.3% vs. 0.0%, 12.5% and 8.6%), while those aged 26-30 years indicated higher levels of this same domain than those over 30, 21-25 and 15-20 years in general competence (12.5% vs. 9,1%, 0,0% y 6,7%). None of these differences were statistically significant*(p* > ,05). In general, the age ranges that obtained lower levels of proficiency in English communicative skills were the participants aged 26-30 years and 21-25 years, respectively.

Table 4

Differences in English communicative competencies by age range

	15-20 years*(n* = 60)	**21-25 years*(n* = 35)**	**26-30 years*(n* = 8)**	**> 30 years*(n* = 11)**	^{X2}	***p***
	n (%)	***n (%)***	***n (%)***	***n (%)***		
Grammar and vocabulary						
A1	10 (16,7)	4 (11,4)	0 (0,0)	2 (18,2)	25,66	**,04**
A2	8 (13,3)	13 (37,1)	5 (62,5)	1 (9,1)		
B1	16 (26,7)	9 (25,7)	2 (25,0)	2 (18,2)		
B2	17 (28,3)	4 (11,4)	1 (12,5)	3 (27,3)		
C1	8 (13,3)	1 (2,9)	0.0 (0,0)	2 (18,2)		
C2	1 (1,7)	4 (11,4)	0.0 (0,0)	1 (9,1)		
Written production						
A1	11 (18,3)	6 (17,1)	1 (12,5)	2 (18,2)	9,67	,64
A2	12 (20,0)	12 (34,3)	5 (62,5)	2 (18,2)		
B1	23 (38,3)	11 (31,4)	1 (12,5)	3 (27,3)		
B2	11 (18,3)	5 (14,3)	1 (12,5)	3 (27,3)		

C1	3 (5,0)	1 (2,9)	0 (0,0)	1 (9,1)		
C2	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)		
Reading comprehension						
A1	2 (3,3)	3 (8,6)	0 (0,0)	2 (18,2)	19,12	,21
A2	14 (23,3)	14 (0,4)	3 (37,5)	1 (9,1)		
B1	17 (28,3)	12 (34,3)	3 (37,5)	5 (45,5)		
B2	21 (35,0)	5 (14,3)	1 (12,5)	1 (9,1)		
C1	4 (6,7)	1 (2,9)	1 (12,5)	1 (9,1)		
C2	2 (3,3)	0 (0,0)	0 (0,0)	1 (9,1)		
Oral production						
A1	14 (23,3)	6 (17,1)	2 (0,25)	5 (45,5)	17,85	,27
A2	17 (28,3)	18 (51,4)	3 (37,5)	4 (36,4)		
B1	8 (13,3)	6 (17,1)	2 (0,25)	2 (18,2)		
B2	10 (16,7)	2 (5,7)	0 (0,0)	0 (0,0)		
C1	6 (10,0)	3 (8,6)	0 (0,0)	0 (0,0)		
C2	5 (8,3)	0 (0,0)	1 (12,5)	0 (0,0)		
Oral comprehension						
A1	13 (21,7)	7 (0,2)	1 (12,5)	2 (18,2)	15,95	,38
A2	12 (20,0)	15 (42,9)	4 (0,5)	2 (18,2)		
B1	17 (28,3)	10 (28,6)	2 (0,25)	4 (36,4)		
B2	14 (23,3)	3 (8,6)	1 (12,5)	2 (18,2)		
C1	3 (5,0)	0 (0,0)	0 (0,0)	0 (0,0)		
C2	1 (1,7)	0 (0,0)	0 (0,0)	1 (9,1)		
General competence						
A1	4 (6,7)	2 (5,7)	0 (0,0)	2 (18,2)	17,36	,14
A2	16 (26,7)	16 (45,7)	6 (0,75)	2 (18,2)		
B1	29 (48,3)	14 (0,4)	1 (12,5)	6 (54,5)		
B2	7 (11,7)	3 (8,6)	0 (0,0)	0 (0,0)		
C1	4 (6,7)	0 (0,0)	1 (12,5)	1 (9,1)		
C2	0 (0,0)	0 (0,0)	0 (0,0)	0.0 (0,0)		

Participants with more than 3 years of prior English language training showed higher levels of C proficiency than those with no prior English language training experience or those with 2 to 3, 1 to 2 and 0 to 1 years in grammar and vocabulary (53.9% vs. 9.7%, 23.1%, 5.6% and 7.7%), this difference being statistically significant(p = ,04, ^{X2} = 32.75). Those with previous English training of 2 to 3 years obtained higher levels of C proficiency than those with no training experience or those with more than 3, 1 to 2 and 0 to 1 years in written production (15.4% vs. 0.0%, 0.0%, 11.1% and 2.6%), reading comprehension (15.4% vs. 9.7%, 0.0%, 5.6% and 10.3%), oral comprehension (15.4% vs. 0.0%, 0.0%, 5.6% and 5.2%) and general competition (15.4% vs. 6.5%, 0.0%, 5.6% and 2.6%), although none of these differences were statistically significant(p > ,05). As can be seen in Table 5, in general, students with less than 2 years of training in English obtained the lowest levels of mastery of communicative competencies in this language.

Those with more than three years of English training showed the lowest English A proficiency in oral production (92.3%).

Table 5
Differences in English communication skills according to years of previous English language training

	None (*n* = 31)	**0 to 1 years(*n* = 39)**	**1 to 2 years (*n* = 18)**	**2 to 3 years(*n* = 13)**	**> 3 years(*n* = 13)**	x^2	***p***
	***n* (%)**	***n* (%)**	***n* (%)**	***n* (%)**	***n* (%)**		
Grammar and vocabulary							
A1	5 (16,1)	7 (17,9)	2 (11,1)	2 (15,4)	0 (0,0)	32,75	**,04**
A2	10 (32,3)	12 (30,8)	4 (22,2)	1 (7,7)	0 (0,0)		
B1	9 (0,29)	7 (17,9)	5 (27,8)	5 (38,5)	3 (23,1)		
B2	4 (12,9)	10 (25,6)	6 (33,3)	2 (15,4)	3 (23,1)		
C1	1 (3,2)	3 (7,7)	1 (5,6)	2 (15,4)	4 (30,8)		
C2	2 (6,5)	0 (0,0)	0 (0,0)	1 (7,7)	3 (23,1)		
Written production							
A1	6 (19,4)	8 (20,5)	3 (16,7)	3 (23,1)	0 (0,0)	19,73	,23
A2	9 (0,29)	10 (25,6)	6 (33,3)	4 (30,8)	2 (15,4)		
B1	8 (25,8)	15 (38,5)	6 (33,3)	2 (15,4)	7 (53,8)		
B2	8 (25,8)	5 (12,8)	1 (5,6)	2 (15,4)	4 (30,8)		
C1	0 (0,0)	1 (2,6)	2 (11,1)	2 (15,4)	0 (0,0)		
C2	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)		
Reading comprehension							
A1	2 (6,5)	4 (10,3)	1 (5,6)	0 (0,0)	0 (0,0)	19,62	,48
A2	8 (25,8)	11 (28,2)	6 (33,3)	4 (30,8)	3 (23,1)		
B1	11 (35,5)	9 (23,1)	7 (38,9)	3 (23,1)	7 (53,8)		
B2	7 (22,6)	11 (28,2)	3 (16,7)	4 (30,8)	3 (23,1)		
C1	3 (9,7)	3 (7,7)	1 (5,6)	0 (0,0)	0 (0,0)		
C2	0 (0,0)	1 (2,6)	0 (0,0)	2 (15,4)	0 (0,0)		
Oral production							
A1	5 (16,1)	11 (28,2)	5 (27,8)	3 (23,1)	3 (23,1)	23,29	,27
A2	10 (32,3)	16 (0,41)	5 (27,8)	2 (15,4)	9 (69,2)		
B1	6 (19,4)	4 (10,3)	3 (16,7)	4 (30,8)	1 (7,7)		
B2	3 (9,7)	6 (15,4)	1 (5,6)	2 (15,4)	0 (0,0)		
C1	3 (9,7)	2 (5,1)	3 (16,7)	1 (7,7)	0 (0,0)		
C2	4 (12,9)	0 (0,0)	1 (5,6)	1 (7,7)	0 (0,0)		
Oral comprehension							
A1	7 (22,6)	6 (15,4)	4 (22,2)	4 (30,8)	2 (15,4)	13,97	,83
A2	8 (25,8)	13 (33,3)	6 (33,3)	2 (15,4)	4 (30,8)		
B1	12 (38,7)	11 (28,2)	5 (27,8)	2 (15,4)	3 (23,1)		

B2	4 (12,9)	7 (17,9)	2 (11,1)	3 (23,1)	4 (30,8)		
C1	0 (0,0)	1 (2,6)	1 (5,6)	1 (7,7)	0 (0,0)		
C2	0 (0,0)	1 (2,6)	0 (0,0)	1 (7,7)	0 (0,0)		
General competence							
A1	2 (6,5)	4 (10,3)	1 (5,6)	1 (7,7)	0 (0,0)	12,7	,69
A2	11 (35,5)	17 (43,6)	7 (38,9)	3 (23,1)	2 (0,1)		
B1	12 (38,7)	15 (38,5)	8 (44,4)	6 (46,2)	9 (0,8)		
B2	4 (12,9)	2 (5,1)	1 (5,6)	1 (7,7)	2 (0,1)		
C1	2 (6,5)	1 (2,6)	1 (5,6)	2 (15,4)	0 (0,0)		
C2	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)		

Participants who indicated having lived with English-speaking families demonstrated higher levels of English C proficiency than those who did not in grammar and vocabulary (20.6% vs. 6.5%), reading comprehension (10.3% vs. 7.3%), written production (7.4% vs. 0.0%), listening comprehension (5.9% vs. 2.2%) and general competition (7.4% vs. 2.2%), the latter being the only statistically significant difference*(p* = .03, ^{X2} = 11.01). As shown in Table 6, those who indicated that they had not lived with an English-speaking family obtained higher levels of English B and C proficiency than those who did in oral production (30.4% and 14.6% vs. 23.5% and 13.3%), although these differences were not significant*(p* > ,05).

Table 6

Differences inEnglish communication skills according to living or not with English-speaking families

	English-speaking family*(n* = 68)	**Non-English speaking family (*n* = 49)**	^{X2}	***p***
	n (%)	***n (%)***		
Grammar and vocabulary				
A1	7 (10,3)	9 (19,6)	9,73	,08
A2	12 (17,6)	15 (32,6)		
B1	19 (27,9)	10 (21,7)		
B2	16 (23,5)	9 (19,6)		
C1	8 (11,8)	3 (6,5)		
C2	6 (8,8)	0 (0,0)		
Written production				
A1	11 (16,2)	9 (19,6)	7,35	,12
A2	14 (20,6)	17 (37,0)		
B1	24 (35,3)	14 (30,4)		
B2	14 (20,6)	6 (0,13)		
C1	5 (7,4)	0 (0,0)		
C2	0 (0,0)	0 (0,0)		
Reading comprehension				
A1	4 (5,9)	3 (6,5)	3,53	,62

A2	15 (22,1)	17 (0,4)		
B1	23 (33,8)	14 (30,4)		
B2	19 (27,9)	9 (19,6)		
C1	5 (7,4)	2 (4,3)		
C2	2 (2,9)	1 (2,2)		
Oral production				
A1	14 (20,6)	13 (28,3)	3,00	,70
A2	29 (42,6)	13 (28,3)		
B1	10 (14,7)	8 (17,4)		
B2	6 (8,8)	6 (0,13)		
C1	5 (7,4)	4 (8,7)		
C2	4 (5,9)	2 (4,3)		
Oral comprehension				
A1	11 (16,2)	12 (26,1)	4,18	,52
A2	19 (27,9)	14 (30,4)		
B1	22 (32,4)	11 (23,9)		
B2	12 (17,6)	8 (17,4)		
C1	3 (4,4)	0 (0,0)		
C2	1 (1,5)	1 (2,2)		
General competence				
A1	5 (7,4)	3 (6,5)	11,01	**,03**
A2	16 (23,5)	24 (52,2)		
B1	36 (52,9)	14 (30,4)		
B2	6 (8,8)	4 (8,7)		
C1	5 (7,4)	1 (2,2)		
C2	0 (0,0)	0 (0,0)		

Discussion and conclusions

The objective of this research was to evaluate the communicative competencies in English of a representative sample of 114 incoming Dominican university students, using an *ad hoc* instrument based on the CEFR. The results of this study indicated that most of the sample showed intermediate English proficiency (B1 and B2) in written comprehension, general proficiency, written production, and grammar and vocabulary; and low proficiency (A1 and A2) in oral production and oral comprehension, respectively. In addition, when comparing by analysis groups, it was identified that female students obtained higher levels of proficiency in all English communicative competencies than male students, although the differences were not statistically significant.

Similarly, it was found that students over 30 years of age were the age range with the highest levels of proficiency in most of the communicative competencies in English, obtaining statistically significant differences in the mastery of grammar and vocabulary. Students with more than three years of previous training showed the highest levels in grammar and vocabulary, with a statistically significant difference. Those who indicated having lived with English-speaking family reported higher levels of English proficiency in grammar and vocabulary, written comprehension, written production, oral comprehension and general proficiency, the latter being the only significant difference.

In this vein, these findings highlight the relevance of providing initial formative accompaniment to incoming students at universities, as previously noted in the literature (Castelo et al., 2019; Figueroa, and Álvarez, 2014; Moreira-Aguayo, and Venegas-Loor, 2020; Rodríguez, 2015; Vargas et al., 2008). In general, the programs of classes in English taught to university students should recognize, as a priority, the need to intervene in the communicative competencies of oral production and comprehension in all incoming students (Moreno and Villafuerte, 2016; Romero et al., 2020). They should also focus on strengthening domains such as reading comprehension, general competence, written production, grammar and vocabulary, in that order of priority.

It is relevant that in the improvement plans of English programs in universities, specific leveling strategies are designed for male students between the ages of 21 and 30, with less than two years of previous training in English and who have not lived with an English-speaking family. Although in general not many significant differences were identified between the groups explored in this study, the analyses provide evidence that these are the student groups that may require greater accompaniment in their training plan.

Strategies for the development of communicative competencies based on the promotion of motivation, values and collaborative activities could be considered in university English programs, recognizing the leading role they have demonstrated in foreign language learning (Borja-Torresano et al., 2020; Cabrera et al., 2020; López, 2020; Luna-Hernández, 2016; Nuñez and Deulofeo, 2020). The implementation of complementary technological resources during English language instruction is especially important at the university level (Bolaños et al., 2021; García et al., 2020; Uribe et al., 2020). The results of previous studies have provided evidence of the multiple benefits of integrating virtual strategies within the training plans of university students (Bolaños et al., 2021; García et al., 2020; López, 2020).

The educational role played by university English teachers is fundamental to address the diverse needs reported in this article, as has been demonstrated in previous studies (Ching and Badilla, 2021; Gómez and Larenas, 2020; Tagle-Ochoa et al., 2020). In agreement with what was observed in this research, the classification of the communicative competencies obtained by the incoming students underlines the need for increased teaching strategies on the part of teachers and professionalization in English on the part of universities. Inthis sense, the contribution of educational policies that prioritize English reinforcement plans is a highly relevant support for the academic and labor insertion of university students.

The following limitations should be considered in the interpretation of these findings. First, due to the health emergency caused by the COVID-19 pandemic, the data for this study had to be collected using a Google online form. Connectivity difficulties and discontinuity of response time for some of the UTESA students may have interfered with their respective evaluations. Second, although simple random sampling was used in this study, no stratification criteria were defined for key comparison variables. The unbalanced distribution of the sample characteristics, therefore, may have hindered the scope of some comparisons between groups, as in the case of gender and age ranges. Third, although 28 more students were assessed than necessary to constitute a representative study sample, a larger sample size could have helped to explore more accurately the comparison between the analysis groups.

In conclusion, communicative competencies in English constitute a highly relevant training resource for the professional development of university students. This study allows us to identify intermediate levels in the English communicative

competencies of written comprehension, general competence, written production, and grammar and vocabulary. It also provides evidence of the need to strengthen the communicative competencies of oral production and comprehension as a priority in this sample. The findings of this research could contribute to the plan to strengthen English programs taught in universities. It is recommended that future studies continue to explore the baseline competencies of incoming university students, with the purpose of expanding the evidence in samples with other characteristics and to provide ongoing professionalization support in English, adjusted according to the updated CEFR criteria.

References

Al-Ahdal, A. A., Alfallaj, F., Al-Awaied, S., & Al-Hattami, A. A. (2014). A comparative study of proficiency in speaking and writing among EFL learners in Saudi Arabia. *American International Journal of Contemporary Research, 4*(2), 141-149. http://www.aijcrnet.com/journals/Vol_4_No_2_February_2014/19.pdf

Baublitz, K. (2010). *Motivational factors in the ESL classroom*. Hankuk University of Foreign Studies.

Bolaños, A., Chacón, M. J., & Pulido, Y. M. (2021). El desarrollo de las competencias lectoras en el ámbito virtual. *Inclusión y Desarrollo, 8*(1), 28-37. https://doi.org/10.26620/uniminuto.inclusion.8.1.2021.28-37

Borja-Torresano, S. C., Mascaro-Benites, E. M., & Ulli-Flores, W. E. (2020). Motivación en el uso de podcast para el desarrollo de competencias comunicativas en el aprendizaje del idioma inglés. *Dominio de las Ciencias, 6*(4), 172-197. http://dx.doi.org/10.23857/dc.v6i4.1460

Brooks, G. & Wilson, J. (2014). Using Oral Presentations to Improve Students' English Language Skills. *Kwansei Gakuin University Humanities Review, 19*, 199- 212. http://hdl.handle.net/10236/13201

Brown, H. D. (2000). *Principles of Language Learning and Teaching,* (4ª Ed.). Addition Wesley Longman

Cabrera, L. F. M., Vejar, M. L. L., & Salinas, J. A. T. (2020). Aprendizaje basado en proyectos y destreza oral en inglés de estudiantes universitarios. *Revista Arbitrada Interdisciplinaria Koinonía, 5*(9), 544-558. http://dx.doi.org/10.35381/r.k.v5i9.685

Castelo, E. M. S., Chunata, N. M. I., Yumisaca, W. G. R., Arias, E. A. B., & Murillo, M. G. E. (2019). El Microcurrículo de inglés y su influencia en el desarrollo de las competencias comunicativas. *Ciencia Digital, 3*(3), 278-295. https://doi.org/10.33262/cienciadigital.v3i3.635

Ching, R. C. H. & Badilla, D. C. (2021). El estímulo de la motivación intrínseca del estudiantado en un curso de inglés como lengua extranjera. *Revista Internacional de Pedagogía e Innovación Educativa, 1*(1), 149-172. https://doi.org/10.51660/ripie.v1i1.30

Chomsky, N. (1968). *Language and mind*. Harcourt, Brace & World.

Consejo de Europa. (2017). *Common European framework of reference for languages: Learning, teaching, assessment*. Cambridge University Press.

https://rm.coe.int/cefr-companion-volume-with-new-descriptors-2018/1680787989

Dhanasobhon, S. (2006). English language teaching dilemma in Thailand. http://www.curriculumandinstruction.org/index.php?lay=show&ac=article&Id=539134523&Ntype=7

García, P. A. V., Padrón, R. A., Betancourt, E. E. A., Otero, E. D., & Castillo, O. L. (2020). Mobile learning: el uso de Whatsapp en el aprendizaje del inglés. *Revista Conrado, 16*(77), 201-208. http://scielo.sld.cu/pdf/rc/v16n77/1990-8644-rc-16-77-201.pdf

Gómez, J. F. & Larenas, C. D. (2020). Uso de estrategias comunicativas para la habilidad de escucha y su relación con el nivel de inglés de estudiantes universitarios. *Revista Complutense de Educación, 31*(4), 413-423. https://doi.org/10.5209/rced.65406

Figueroa, M. D., & Álvarez, H. G. (2014). Contribución de la Disciplina Idioma Inglés a la formación de las competencias comunicativa y profesional. *Panorama. Cuba y Salud, 4*(2), 38-44. http://revpanorama.sld.cu/index.php/panorama/article/view/129

Fisher, L. & Navarro, V. (1994). *Introducción a la investigación de mercado* (3ª ed.). McGraw-Hill

House, J. (2003). Der Gemeinsame europäische Referenzrahmen für Sprachen - Anspruch und Realität. En K.-R. Bausch, H. Christ, F. G. Königs y H.-J. Krumm (Eds.), *Der Gemeinsame europäische Referenzrahmen für Sprachen in der Diskussion*. Arbeitspapiere der 22.

Jones, J. F. (2004). A cultural context for language anxiety. *EA Journal. 21*(2), 30-39. https://researchprofiles.canberra.edu.au/en/publications/a-cultural-context-for-language-anxiety

Klieme, E., Hartig, J., & Rauch, D. (2008). The concept of competence in educational contexts. En J. Hartig, E. Klieme y D. Leutner (Eds.), *Assessment of competencies in educational contexts* (pp. 3–22). Hogrefe.

López, R. E. P. (2020). Aprendizaje colaborativo como estrategia didáctica para promover la práctica oral del inglés en horarios extra-escolar usando Google Hangouts. *Revista Torreón Universitario, 9*(26), 10-25. https://doi.org/10.5377/torreon.v9i26.10255

Luna-Hernández, A. (2016). La motivación y su influencia en la comunicación oral del idioma inglés en los estudiantes universitarios. *Dominio de las Ciencias, 2*(2), 32-40. https://dialnet.unirioja.es/servlet/articulo?codigo=5761591

Messick, S. (1984). The psychology of educational measurement. *Journal of Educational Measurement, 21*(3), 215–237. https://www.jstor.org/stable/1434780

Moreira-Aguayo, P. Y. & Venegas-Loor, L. V. (2020). Desarrollo de competencias comunicativas del idioma ingles. *Dominio de las Ciencias, 6(*4), 1292-1303. https://dominiodelasciencias.com/ojs/index.php/es/article/view/1537

Moreno, G. C. & Villafuerte, J. S. (2016). Desarrollo de las destrezas productivas en idioma inglés de estudiantes universitarios. *REFCalE: Revista Electrónica Formación y Calidad Educativa, 3*(3), 89-108. http://www.refcale.uleam.edu.ec/index.php/refcale/article/view/431

Nold, G. (2007). DESI im Kontext des Gemeinsamen Europäischen Referenzrahmens für Sprachen. En B. Beck y E. Klieme (Eds.), *Sprachliche Kompetenzen. Konzepte und Messung. DESI-Studie* (pp. 299–305). Beltz.

Nuñez, L. M. & Deulofeo, R. P. (2020). La comunicación intercultural entre estudiantes universitarios: influencia en la formación de actitudes y valores. *Mendive, 18*(1), 33-45. https://mendive.upr.edu.cu/index.php/MendiveUPR/article/view/1734

Oletić, A., 6 IIic, N. (2014). Intrinsic and extrinsic motivation for learning English as a Foreign Language. *ELTA Journal, 2*(2), 23-38. https://doi.org/10.18026/cbusos.66920

Rodríguez, C. (2015). Competencias comunicativas en idioma inglés: La influencia de la gestión escolar y del nivel socioeconómico en el nivel de logro educativo en L2-inglés. *Perfiles Educativos, 37*(149), 74-93. http://www.scielo.org.mx/scielo.php?script=sci_abstract&pid=S0185-26982015000300005&lng=es&nrm=iso

Romero, K. L. O., Hernández, J. C., & Carrascal, A. A. (2020). Actitud, motivación y rendimiento académico de estudiantes universitarios hacia el aprendizaje del inglés. *Revista Electrónica Entrevista Académica (REEA), 2*(5), 133-150. https://ideas.repec.org/a/erv/rearea/y2020i522.html

Tagle-Ochoa, T., Schuster-Muñoz, C., Rojas-Caro, V., Campos-Espinoza, M., Ubilla-Rosales, L., Flores-Gajardo, L., & Briesmaster, M. (2020). Enseñar y aprender a leer en inglés: creencias de futuros docentes de lengua extranjera chilenos. *Folios,* (52), 187-204. https://doi.org/10.17227/folios.52-11778

Tinjaca B. & Contreras A. (2008). Overcoming fear of speaking in English through meaningful activities: A study with teenagers. *Profile Issues in Teachers´ Professional Development,* (9), 23-46. http://www.scielo.org.co/pdf/prf/n9/n9a03.pdf

Toala-Alarcón, M. D. C., Vivero-Cedeño, N. J., Macías-Loor, M. A., & Bolívar-Chávez, O. E. (2019). El aprendizaje basado en tareas y las competencias comunicativas del inglés en estudiantes universitarios. *Polo del Conocimiento, 4(*5), 444-451. https://dialnet.unirioja.es/servlet/articulo?codigo=7164255

Turula, A. (2004). Language anxiety and classroom dynamics: A study of adult learners. *ERIC, 40*(2), 28-37. https://www.academia.edu/1079200/Language_Anxiety_and_Classroom_Dynamics

Uribe, P. A. A., Murillo, J. D. D. M., & Sánchez, J. C. G. (2020). Las tareas vivenciales como estrategia didáctica en la enseñanza del inglés. *Revista Boletín Redipe, 9*(5), 209-220. https://revista.redipe.org/index.php/1/article/view/989

Vargas, A., Tejada, H., & Colmenares, S. (2008). Estándares básicos de competencias en lenguas extranjeras (inglés): una lectura crítica. *Lenguaje, 36*(1), 241-275. https://doi.org/10.25100/lenguaje.v36i1.4863

Von Worde, R. A. (2003). Student's Perspectives on Foreign Anxiety. *Inquiry. 8*(1), 1-15. https://files.eric.ed.gov/fulltext/EJ876838.pdf

Young-Shin, P. & Uichol, K. (1999). The educational challenge of Korea in the global era: The role of family, school, and government. *Chinese University Educational Journal, 27*(1), 91-120. https://eric.ed.gov/?id=EJ617080

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CRITICAL ANALYSIS ABOUT THE EXIT PROFILE OF THE ECUADORIAN HIGH SCHOOL GRADUATE. A LOOK FROM A PROJECT-BASED LEARNING METHOD

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Abstract. Educational programs are more and more inclined to promote values that favor the integral development of the students, and for this purpose various formulas are implemented that seek to adjust to the social, educational and curricular demands from the methodological point of view. In this approach to the formation of the Ecuadorian Baccalaureate, we analyze its legal principles, curricular guidelines and educational quality standards focused on the fulfillment of the exit profile of the baccalaureate, as well as the perception of these by students and teachers of the Educational Unit of the Millennium Manuel J. Calle of the city of Cuenca, from here an improvement strategy is proposed with the use of the Project Based Learning Method (PBL), applied in a sample of 92 students of the 2nd year of the Unified General High School (BGU), who attended the Student Participation Program (PPE), specifically the PPE (2017-2018), whose results show that the PBL Method used in the PPE case study contributes significantly to raise the quality of the Exit Profile of the Bachelor (PSB) through the development of life skills. The PBL Method is a suitable alternative to enhance the educational process of the country, while facilitating harmonious coexistence in the school environment for those who use it directly and indirectly.

Key words: Exit Profile, Project Based Learning, Adolescents and Coexistence.

ANÁLISIS CRÍTICO ACERCA DEL PERFIL DE SALIDA DEL BACHILLER ECUATORIANO. UNA MIRADA DESDE EL MÉTODO DE APRENDIZAJE BASADO EN PROYECTOS

Resumen. Los programas educativos cada vez más se inclinan a la potenciación de valores que favorezcan el desarrollo integral de los educandos, para ello se implementan diversas fórmulas que pretenden desde lo metodológico ajustarse a las exigencias sociales, educativas y curriculares. En este acercamiento a la formación del Bachiller Ecuatoriano, se analizan sus principios legales, lineamientos curriculares y estándares de calidad educativa enfocado al cumplimiento del perfil de salida del bachillerato, así como la percepción de estos por parte

de estudiantes y docentes de la Unidad Educativa del Milenio Manuel J. Calle de la ciudad de Cuenca, a partir de aquí se propone una estrategia de mejora con el uso del Método de Aprendizaje Basado en Proyectos (ABP), aplicada en una muestra de 92 estudiantes del 2do año del Bachillerato General Unificado (BGU), quienes cursaron el Programa de Participación Estudiantil (PPE), específicamente el PPE (2017-2018), cuyos resultados evidencian que el Método ABP empleado en el PPE caso de estudio contribuye significativamente a elevar la calidad del Perfil de Salida del Bachiller (PSB) por medio del desarrollo de habilidades para la vida. El Método de ABP es una alternativa adecuada para elevar el proceso formativo del país, a la vez facilita la convivencia armónica en el marco escolar para quienes la utilizan directa e indirectamente.

Palabras clave: Perfil de salida, Aprendizaje Basado en Proyectos, Adolescentes y Convivencia.

Introduction

We are witnessing a change of era, where traditional roles have been modified in the various contexts of human development and education. It has changed the family, society and school. In this new context, the quality of education cannot be conceived without emotional education, which has not arrived as a fashion, but as an undeniable social need (Marina, 2005; Marina, Bernal and Posner, 2012). Circumstance that reveals the socioemotional skills and life skills that we will detail, represent the current education indicators evidenced in the exit profile of each Ecuadorian high school graduate. For this purpose, certain relevant studies in the socio-educational field will be presented, which provide sufficient evidence on the importance that the educational system should give to the development of life skills, from the earliest stages and especially in adolescence.

To analyze the relevance of an innovative proposal with the project-based learning method (Emoj-Innova) in the fulfillment of the Ecuadorian Baccalaureate Exit Profile (PSBE) of the students of the U. E. M. Manuel J. Calle in the city of Cuenca-Ecuador during the period 2017-2019.

Among the specific objectives of this research it was estimated:

- Determine the current situation of compliance with the exit profile of the control group of students at U.E.M Manuel J. Calle.
- To determine the fulfillment of the exit profile of the experimental group after the application of the innovative proposal with the project-based learning method (Emoj-Innova) through the Student Participation Program (PPE) in the field of action of Coexistence with 2nd BGU students.
- Describe the perception of students, teachers, managers and legal representatives on the proposal developed.

It should be emphasized that this methodological proposal addresses school coexistence as the ideal means to apply the innovative Emoj-Innova proposal that applies the Project Based Learning Method (PBL) through the Student Participation Program (PPE) applied to the high school where our analysis is specifically focused. Therefore, in order to better understand this proposal, we begin by highlighting its main foundations.

According to Ortega (2007), quoted by Fierro-Evans M. (2012, p.9), states that in the socio-legal sense, coexistence means "the existence of a public sphere that allows respect for the rights of each person without discrimination or distinction for personal, class or group reasons"; under this foundation it is possible to extract the very essence of coexistence, whose psychoeducational dimension assumes that Education, according to Onetto (2003), is only carried out through the "intersubjective encounter of human beings, so that if this is not

developed with parameters of psychological, ethical and emotional well-being it may be very difficult or even impossible to start with the teaching and learning processes" (p. 9).

In this way, coexistence supposes that dimension between society with its respective ethical principles that allow valuing and recognizing others, with their differences at the same time; with a more analytical approach Hirmas and Eroles (2008), quoted by Fierro-Evans M., (2012, p. 9) who compiles the theoretical discussions that underlie different intervention programs on coexistence carried out in Latin America, understood as:

A continuous constructive process, based on transactions, negotiation of meanings, elaboration of solutions, which creates a historically constructed common reference that generates a sense of familiarity, which becomes part of the identity of the group and of those who participate in it. Living in one or another institution implies the framework of a group identity, expressed in particular forms of relationship, logics of action and installed meanings, values and beliefs. Understood in this way, coexistence is a paradox because, while being omnipresent, it tends to invisibility. This represents a first complexity to act upon.

In synthesis, it can be understood as a process of interaction and real interrelation between those who exchange intersubjective opinions that somehow build a culture without leaving aside its multidimensionality as singularity with which it converges in its history.

Fierro and Tapia (2012), cited by Rivera-Acevedo (2016, p.15) state that coexistence is and happens, because of human interaction, but we become nonconformist with that which happens. We take a stand against segregation, inequality, exclusion, the violence that this represents and the violence to which it gives rise. Referring to coexistence reflects a tension between being and wanting to be.

It should be understood that coexistence is a fundamental factor that demands knowing how to channel emotions based on self-knowledge and interacting with other members of society, trying to work towards the achievement of common goals, to achieve social goals requires a strong, harmonious and ethical leadership with a great social commitment.

According to Fierro and Carbajal (2003), quoted by Fierro-Evans M., (2012, p. 10), determine that while it is true, human beings have several contexts in which to coexist, and it is in the school where, based on the current legal regulations, disciplinary regulations and pedagogical practices that promote care and respect among all, will make possible their socio-cultural and emotional development, "the construction of their identity, belonging to their cultures of reference and the institution itself as a socio-community environment".

For Rivera-Acevedo (2016), coexistence is an: Aglutinating because it refers to the interactions that surround and link life in the school... it goes much further: it is not only the context for teaching and learning, but refers to the space of life shared with others and, therefore, offers fundamental experiences for socio-affective and ethical formation; it assumes the ability to work with others, to resolve differences and conflicts that arise in school life, to recognize and support situations that may demand the support and solidarity of peers, the ability to actively listen and dialogue, as well as empathy, that is, the ability to put oneself in the other person's place (p.16).

It is appropriate to point out that the studies cited above demonstrate the importance of designing and implementing programs focused on raising awareness in order to foster and cultivate a culture of peace and work permanently for harmonious coexistence.

In the Universal Declaration of Human Rights on Education for Peace and Human Rights, the United Nations (1948), quoted by Carvajal (1997, pp. 2-3) determines that, like the Modern School, the Peace Research movement questions the role of education in social change, since education alone cannot eradicate structural violence; social and political action is required.

The Universal Declaration of Human Rights urges the importance of rights to human coexistence in the following articles, Art. 1, All human beings are born free and equal in dignity and rights and, endowed as they are with reason and conscience, should behave towards one another in a spirit of brotherhood. In compliance with this we have Art. 26, numeral 2. Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms; it shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace (United Nations, 1948).

The Inter-American Report on Human Rights Education (IIDH, 2011, p. 39), quoted by Fierro-Evans M., (2012, p. 6) "clearly states that the institutional mission of the school is not to combat violence; however, it requires knowing how to recognize its manifestations and work directly on its prevention... it is appropriate to make interventions from a formative approach".

In the context of Ecuador the Educational System in the period 2007 to 2017, has created the legal support to optimize the educational quality with warmth, focused on the indigenous worldview of Sumak Kawsay (El Buen Vivir) for all children and adolescents of the Ecuadorian territory, from these documents is exposed what is related between compulsory Education with the development of life and emotional skills, and thus with the profile of the Ecuadorian high school graduate, which is legally justified in the Constitution of the Republic of Ecuador 2008, the Organic Law of Intercultural and Bilingual Education, its general regulations 2012 and updated 2016, Code of Children and Adolescents 2003 and updated 2017 and the respective ministerial agreements.

Therefore, we highlight that the Ministry of Education of Ecuador since 2010, 2011, 2012 and 2013 have adapted the ministerial agreement No. 242-11 with which it was intended to improve the plans, programs promoting the necessary curricular adjustments and which were based on a: The accumulation of successful classroom practices, the comparative study of curricular models from other countries and, especially, the criteria of Ecuadorian teachers with curricular and disciplinary experience in the areas of Language and Literature, Mathematics, Natural Sciences, Social Sciences, Cultural and Artistic Education, and Physical Education at both educational levels (p.

8).

Based on a series of analyses, reasoning, experiences, and looking at the needs of society itself; and with the concurrence of various actors in the country as well as scholars and experts in the educational field both inside and outside it, from this consensual dialogue, a document containing the basic knowledge that students should know at the national level is presented as a final product to the various systems, modalities and supports. That is, the new National Curriculum for General Basic Education and Baccalaureate (2016), founded as:

The expression of the educational project that the members of a country or a nation elaborate in order to promote the development and socialization of the new generations and in general of all its members; the curriculum reflects to a greater or lesser extent the educational intentions of the country, and indicates the guidelines for action or orientations on how to proceed to make these intentions a reality and verify that they have been effectively achieved (p.6).

The legal regulations are based on the following documents:

The Constitution of the Republic of Ecuador (2008), in its Art. 26, mentions that "education is a right of individuals throughout their lives and an inescapable and inexcusable duty of the State" and, in Art. 343, recognizes that "the national education system will integrate an intercultural vision in accordance with the geographic, cultural and linguistic diversity of the country, and respect for the rights of communities, peoples and nationalities.

The Organic Law of Intercultural Education (2012), Art.19 establishes that one objective of the National Education Authority is to "design and ensure the mandatory application of a national curriculum, both in public, municipal, private and fiscal-commissioned institutions, in its various levels: initial, basic and high school, and modalities: classroom, blended and distance learning. In addition, Art. 22, paragraph c), establishes that the National Education Authority is competent: "To formulate and implement educational policies, the mandatory national curriculum at all levels and modalities and the quality standards of educational provision, in accordance with the principles and purposes of this Law in harmony with the objectives of the Development Regime and National Development Plan, the constitutional definitions of the System of Inclusion and Equity and in coordination with the other instances defined in this Law (p.7).

In the General Regulations of the LOEI (2012), Art. 10 stipulates that "The national curricula may be complemented in accordance with the cultural specificities and peculiarities of the various educational institutions that are part of the System

National Education, according to the particularities of the territory in which they operate"

(p.7).

Regarding the baccalaureate level, Art. 43 of the LOEI mentions:

The unified general baccalaureate comprises three years of compulsory education following basic general education. Its purpose is to provide people with a general education and an interdisciplinary preparation that will guide them to develop life projects and to integrate into society as responsible, critical and caring human beings. It develops students' lifelong learning and citizenship skills, and prepares them for work, entrepreneurship, and access to higher education. High school students will take a common core of general subjects.

The curricular framework is in the process of being modified, while the methodological framework offers greater opportunities to bring the legislative intention closer to the practical reality of the teacher. In this sense, there have been several national researches and empirical studies carried out on the emotional dimensions and life skills, both in studies and explicit references that support the development of the bachelor's exit profile where the Ecuadorian context is considered, for example, Flores-Sisalima, (2013); Pepinós, (2015); Tokuhama-Espinosa, (2015); Alarcón Vega, (2018); Ramírez, (2018); whose reality obeys a pluricultural and multiethnic country which demands inclusive studies in the academic-emotional fields, to propitiate accurate answers directed to achieve sustained educational objectives and with this, contribute significantly with the scope of the national curriculum of compulsory education.

When analyzing the National Curriculum of Compulsory Education of the Ecuadorian Educational System (Ministry of Education of Ecuador, 2016), which determines as fundamental axes the development of essential and desirable skills in the various areas of knowledge and above all the profile of the Ecuadorian student body as a supportive, fair and innovative high school graduate, through twelve evaluation indicators, which for Tokuhama-Espinoza (2015), in his work "The Ecuadorian Profile: from education to society", based on the consultancy on the analysis and consensus on the participatory construction of the Ecuadorian Baccalaureate Profile in the framework of the project "strengthening educational quality through the adjustment of the curriculum and learning standards" is that it mentions the beginnings of the twelve indicators that the profile of the ideal citizen should present (p.50), correlating it with "models of the 21st century learner, the demands of the labor sector, the profile of the international baccalaureate and the profile for university entrance... will allow a better use of resources and increase the possibility of achieving a knowledge society" (p. 52).

It seeks to increase the personal and affective-emotional dimension (the self: identity), the social and relational dimension (the encounter with others: otherness) and the symbolic and

cognitive dimension (the environment, space, time and objects): space, time and objects), covering from the 1st year of General Basic Preparatory Education (EGB) to the 2nd year of General Unified High School (BGU), but in the 3rd year of BGU prior to obtaining the Ecuadorian high school diploma, no type of curricular program is applied that gives continuity to the development of these skills, which are closely related to the Ecuadorian High School graduate's exit profile.

Gómez-Ortiz, Romera and Ortega-Ruiz (2017), in their study on the competence to manage emotions and social life, determine the relationship between the phenomenon of bullying and school coexistence indicates that, education has two missions: to instruct schoolchildren to manage to fend for themselves in a not too easy future, and to turn them into ethical citizens who contribute to common development. Within this work, instruction in socio-emotional competencies is positioned as a key element for the achievement of a positive framework on which to build a life in common... in which the role that emotional intelligence, social competence and moral mastery play in the development of school coexistence and the situations that threaten it, focusing specifically on the risk of bullying (p.27).

According to Carbajal, (2010), quoted by Fierro, (2013, p.8), schools thathave directed their efforts to foster harmonious and inclusive coexistence share particularities such as: participation in the collective elaboration of school regulations; they practice peaceful conflict resolution; and, they reflect dialogically from a formative perspective both academic contents and situations of daily school life; they link social reality with community reality that favors the construction of a sense of solidarity with the local community, but involved in a global happening; and they develop a sense of belonging to their school, a sense of community and, therefore, a sense of co-responsibility focused on the common welfare.

Thus, the need to reinforce the compulsory education curriculum with the application of a methodological proposal that develops life and emotional skills in Ecuadorian high school students, which in turn will be evidenced in the better fulfillment of the Exit Profile that every Ecuadorian high school graduate should have, which "will allow a better use of resources and will increase the possibility of achieving a knowledge society and form learners of the XXI century" (Tokuhama-Espinoza, 2015, p. 52); in view of the fact that the benefits in every human being can be diverse, by way of example we cite some of them: eI is related to different variables such as better physical and mental health (Sánchez-Extremera & Fernández, 2016; Martins, Ramalho & Morín, 2010), greater well-being and lower substance use (Fernández-Berrocal & Extremera, 2009; Sánchez-Álvarez, Extremera & Fernández-Berrocal, 2015; Serrano & Andreu, 2016), less aggressive behaviors (García-Sancho, Salguero & Fernández-Berrocal, 2014), as well as better academic performance (Costa & Faria, 2015; Lanciano & Curci, 2014; cited by Fernández-Berrocal, Cabello, & Gutiérrez-Cobo, 2017, p. 17). That is, the use of emotions is employed in: "problem solving, decision making, communication, focusing attention and creative thinking. Therefore, it is about the use of emotions for thinking" (Averill, 1999, 2002; Averill & Nunley, 1992, cited by Fernández-Berrocal, Extremera & Ramos, 2004, p. 145).

According to Tokuhama-Espinoza (2015), the reality is that the current national curriculum only has the subject of Cultural and Artistic Education (ECA) to develop "the affective, emotional, scientific and coexistence part" (p.11) and thus meet the profile of the Ecuadorian high school graduate from 1st EGB to 2nd BGU.

In addition, Tokuhama-Espinoza (2015), on ECA methodology according to the curriculum, "we understand that learning takes place through participation in meaningful projects and experiences, and not through the accumulation of isolated and decontextualized information and practices" (p.54), but this is not always effectively fulfilled.

On the other hand, the exit profile of the Ecuadorian high school graduate is one of the two essential parts of compulsory education and, to a certain extent and from this perspective, it would be considered as the ethical, moral, social, emotional, scientific and other know-how that the Ecuadorian adolescent develops by using the knowledge of the cognitive areas taught in the common core of the curriculum, the cognitive, socioemotional and ethical tools necessary to clearly and critically face the various real and daily problems that arise in his or her adult life.

Also, Tokuhama-Espinoza (2015), state that this exit profile is defined on the basis of three fundamental values: justice, innovation and solidarity and establishes, around them, a set of skills and responsibilities that students must acquire in their transit through compulsory education -General Basic Education and General Unified Baccalaureate-. It is written in the first person plural, with the idea that students will appropriate it and take it as a reference in their daily work in the classroom

(p. 10).

Under these guidelines the reasons for implementing new alternatives are exposed, that under the umbrella of active methodologies promote an increasingly humanized education, which provide teachers and students with resources framed in the coexistence and culture of peace, which will result in an optimization of the profile of high school graduates of the Millennium Educational Unit Manuel J. Calle of the city of Cuenca-Ecuador, since the intention of cultivating emotions in Ecuadorian education is timidly and transversally reflected in the National Curriculum.

The project-based learning (PBL) method: It provides an academic and dynamic space..., allows the development of life skills and research capabilities by implementing that knowledge acquired in the classroom in concrete actions at the service of the educational community (MinEduc, 2017, p.12).

It is supported by the current legal regulations of education and ministerial agreement No. MINEDUC-ME-2016-00040-A regulation of PPE in educational institutions at the national level, Art. 3 Objectives, literal b, which contributes to "Fostering the development of life skills through collaborative work, active participation and harmonious coexistence (2017, p. 6).

is it possible to raise the quality of the Ecuadorian Baccalaureate Exit Profile through an innovative methodology that stimulates the development of Life Skills?

We have proposed to analyze the relevance of a methodological proposal to enhance the Exit Profile of the Ecuadorian Baccalaureate through the Project Based Learning Method.

This paper presents the results of the critical relational analysis of the exit profile of the Ecuadorian high school graduate, from the perspective of the project-based learning method; in addition, it shows the analysis of the general and substantive literature and research on the topic case study of different empirical referents, with special emphasis on previous research that justified the study and that subsequently allowed contrasting the discussion of the results obtained from the data and information gathering in the PPE (2017-2018).

Method

This work is based on the analysis of the fulfillment of the high school graduate's exit profile, before and after the implementation of the proposal aimed at involving the adolescent in various situations that take place at recess time with their classmates in General Basic Education (EGB), children aged between 5 and 12 years, with whom they will carry out their proposals by applying the PBL (Project Based Learning) method.

Participants

The sample selected was incidental or by convenience and corresponds to those who make up the baccalaureate in Science as intact groups of a quasi-experiment, the same that was 92 students with an average age of 16.2 years. The results obtained were subjected to an analysis that made it possible to determine compliance with the Output Profile and the use of the PBL (Project Based Learning) method. In addition, the results allowed:

- To provide an academic and dynamic space with the interaction of the learner on
- a subject of common interest
- Encourage the development of life skills and research skills.
- Invite students to become the protagonists of their own learning by enhancing their creativity and leadership.

The activities for the development of the research were designed taking into account the indicators and guidelines of the Bachelor's exit profile, these were incorporated into the set of theoretical-practical activities that allow the development of socioemotional and life skills, safety and coexistence standards and design of student projects with Project Based Learning (PBL) method, these variables were grouped with their respective measurement instrument.

Instruments and Procedures

Among the data collection techniques and instruments applied we have direct observation, whose instrument was called: Skills for Life-PPE 2018-2019 validated by the Ministry of Education of Ecuador (2017) in which, self-evaluation by the learner and heteroevaluation by the teacher-facilitator of the program were applied.

The PSBE-MJC 2018-2019 Evaluation Matrix (compiles the 12 indicators of the PSBG and 30 items of the Skills for Life matrix, 2017), which was applied to the students and their respective legal representatives and course teachers at the end of the research, was also used. And, in addition, the Matrix for monitoring and evaluation of the implementation of the proposal.

Data analysis

Once the results were obtained, the indicators of the exit profile of the Ecuadorian high school graduate with life skills for the period 2017-2018 were integrated from the Evaluation Matrix on the Exit Profile of the Ecuadorian High School Graduate in MJC-2019, at the beginning and end of the research, this has nine items on the ABP method, in addition to their perception in the development of emotional skills and life skills, of their academic performance and in general on their emotional and cognitive development.

The results are presented by interrelating and prioritizing the particularities that facilitated their analysis and interpretation.

Since the research was based on a qualitative approach design, the collection and analysis of relevant data and information was used, which subsequently made it possible to specify the research questions from which the objectives were derived, the appropriate research design, the variables under study, the analysis of the results and the generation of conclusions and recommendations or prospects.

Based on the results of the qualitative approach, a quantitative approach was developed, generating an approach and understanding of the problem identified in the research, the data and information were not manipulated in the logical deductive context as a product of assumptions; therefore, the data and information analyzed with an inductive approach were aligned and coherent with the theoretical framework related to the research.

Finally, the Microsoft Office Excel utility was applied, based on the use of the descriptive statistics technique.

Results

The current situation of compliance with the exit profile was analyzed according to the descriptive results of the PSBE of the 92 students of the second baccalaureate (BGU) of the U.E.M Manuel J. Calle in the academic period 2017 - 2018, these students did not receive the intervention with the proposal and represent the control group, this sample was considered as a baseline to keep as a reference in the analysis of the current situation.

Current status of compliance with student exit profile - Control group - Students

Table 1 shows that the element that most students (64%) fulfill is "assuming social responsibility and having the capacity to interact with heterogeneous groups, proceeding with understanding, empathy and tolerance"; while the element that they fulfill the least or that is in process (58%) is "understanding the needs and potential of our country and getting involved in the construction of a democratic, equitable and inclusive society".

Table 1
Frequencies - Completed elements of the PSBE

Elements of the EBMP fulfilled	Relative Frequency	Cumulative Frequency
0	25%	25%
1	3%	28%
2	4%	32%
3	10%	42%
4	1%	43%
6	1%	45%
7	3%	48%
8	6%	54%
9	6%	59%
10	4%	64%
11	9%	72%
12	28%	100%
Total	100%	

25% of the students consider that they do not comply with any of the elements established in the PSBE, while a similar percentage, 28%, being the majority of the group those who think they comply with all the elements established in the matrix. At least 50% of the students meet at least 6 or more of the required PSBE items.

In Table 2, it can be identified that the group of students of the 2017 - 2018 academic year has an average compliance of 54% of the parameters, at least 50% of the students comply with 67% and most of the students comply with all 12 parameters evaluated, however, as shown in the table above, there is at least one student who does not comply with any parameter.

Table 2
PBSE Compliance - School Year 2017 - 2018

Variable	Media	Median	Fashion	Minimum	Maximum
Percentage of compliance with the PSBE	54%	67%	100%	0%	100%

Current status of compliance with student exit profile - Control Group - Teachers

On the other hand, in Table 3, it can be seen that teachers consider that in all the elements evaluated, most students do not meet the required exit profile; the highest percentage of compliance (33.30%) teachers agree with students on "assuming social responsibility and having the ability to interact with heterogeneous groups, proceeding with understanding, empathy and tolerance", while for all teachers no student meets the ability to "harmonize the physical and intellectual; use emotional intelligence to be positive flexible, cordial and self-critical."

Table 3
PSBE Compliance - Period 2017 - 2018

Ecuadorian Bachelor's Degree Exit Profile	Complies	Does not comply
PSBE_S3	0.00%	100.00%
PSBE_I1	6.70%	93.30%
PSBE_J1	6.70%	93.30%
PSBE_J4	13.30%	86.70%
PSBE_I2	13.30%	86.70%
PSBE_J2	20.00%	80.00%
PSBE_I3	20.00%	80.00%
PSBE_S2	20.00%	80.00%
PSBE_J3	26.70%	73.30%
PSBE_S4	26.70%	73.30%
PSBE_I4	26.70%	73.30%
PSBE_S1	33.30%	66.70%

Perception on the fulfillment of the exit profile of the experimental group - Legal representatives

The students' legal representatives consider that 92% of the elements evaluated in the exit profile are fulfilled by most of the students (Table 4). For them, 89.86% of the students, contemplate the highest percentage of compliance (See Figure 1), "They build their national identity in search of a peaceful world and value their multiculturalism, respecting the identities of other people and peoples"; while in the skill of "knowing how to communicate clearly in their language and in others using various languages such as numerical, digital, artistic and corporal: assuming their speeches with responsibility", the representatives consider that most of the students do not comply with it.

Figure 1

Relative Frequencies - PSBE; Legal Representative - School Year 2017 - 2018

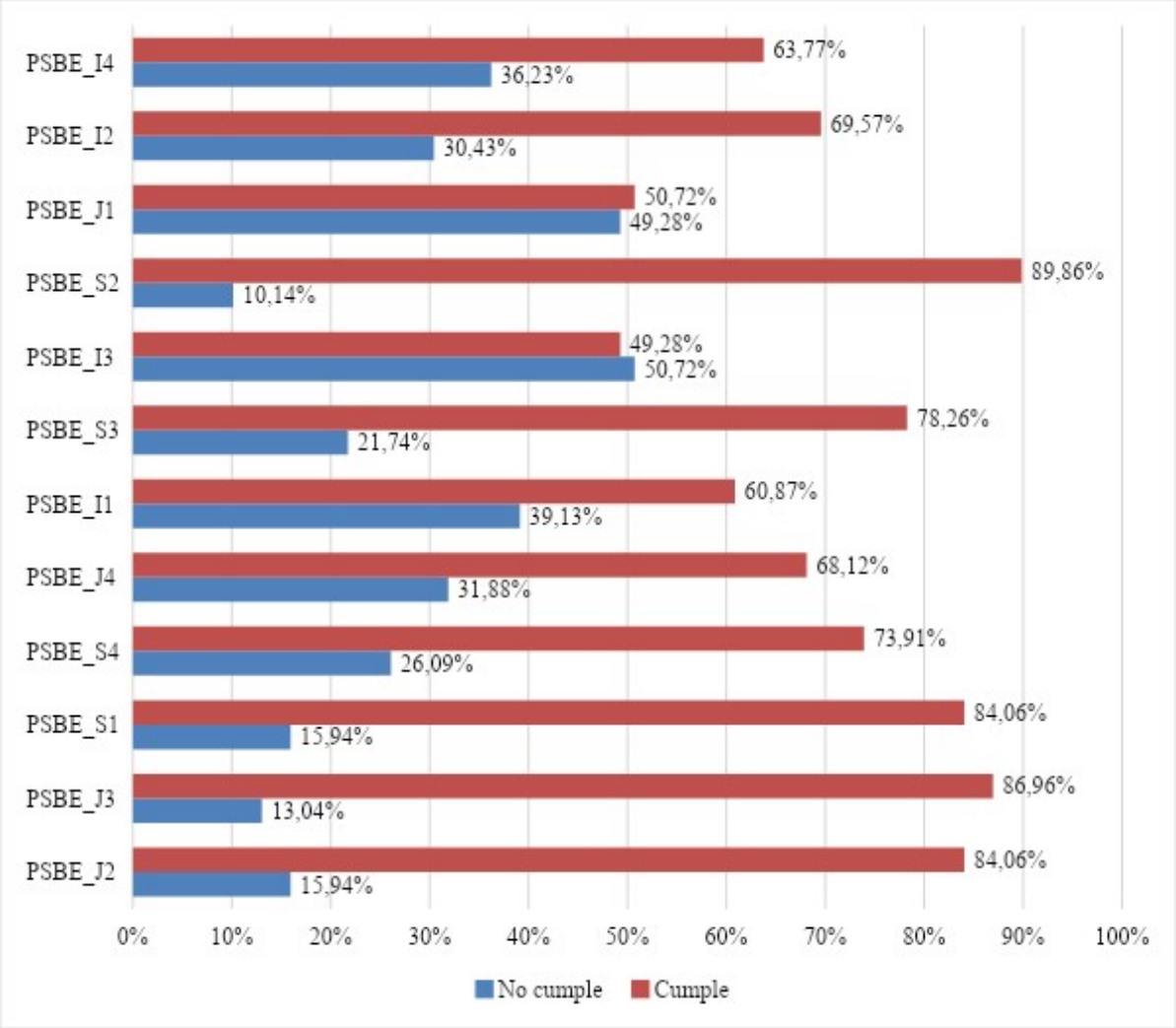

Table 4 shows that 3% of the students' legal representatives believe that their children meet at least 4 elements of the Ecuadorian baccalaureate exit profile, 6% believe that those they represent meet all the elements, and the majority (33%) of parents believe that they meet 72% (9) of the elements.

Table 4
PSBE Compliance - Legal Representatives - Period 2017 - 2018

Elements of the EBMP fulfilled	Relative Frequency	Cumulative Frequency
4	3%	3%
5	4%	7%
6	7%	14%
7	12%	26%
8	13%	39%
9	33%	72%
10	12%	84%
11	10%	94%
12	6%	100%

Perception on the fulfillment of the exit profile of the Experimental Group - Students

Table 5
Frequencies - Completed elements of the EBPP - after intervention

Elements of the EBMP fulfilled	Control Group		Experimental Group	
	Relative Frequency	*Cumulative Frequency*	*Relative Frequency*	*Cumulative Frequency*
0	0%	0%	3%	3%
1	3%	3%	2%	5%
2	3%	6%	0%	5%
3	3%	9%	2%	7%
4	0%	9%	0%	7%
5	15%	24%	2%	9%
6	6%	29%	0%	9%
7	29%	59%	0%	9%
8	9%	68%	5%	14%
9	12%	79%	3%	17%
10	9%	88%	9%	26%
11	3%	91%	33%	59%
12	9%	100%	41%	100%
Total	100%		100%	

In the control group, there are no students who consider that they do not comply with any element of the PSBE, while in the experimental group there are 3% of students who do not comply with any element.

At least 50% of the students in the control group meet at least 7 items, while 50% of the students in the experimental group meet at least 11 items. The majority of the students in the control group (29%) comply with 7

elements, while the majority of students in the experimental group (33%) comply with 11 of the 12 elements or guidelines of the PSBE, after the intervention of the methodological proposal (See Table 5).

Perception on the fulfillment of the exit profile of the experimental group - Teachers and managers

Table 6

PSBE Compliance - Teachers - After the Intervention

PSBE	Control Group		Experimental Group	
	Complies	*Does not comply*	*Complies*	*Does not comply*
PSBE_J2	58%	42%	69%	31%
PSBE_J3	67%	33%	69%	31%
PSBE_S1	75%	25%	100%	0%
PSBE_S4	75%	25%	100%	0%
PSBE_J4	75%	25%	25%	94%
6%	6%	PSBE_J4	75%	25%
94%	6%	PSBE_J4		
PSBE_I4	75%	25%	81%	19%
PSBE_I1	67%	33%	63%	37%
PSBE_S3	67%	33%	100%	0%
PSBE_I3	58%	42%	100%	0%
PSBE_S2	50%	50%	75%	25%
PSBE_J1	83%	17%	88%	12%
PSBE_I2	92%	8%	94%	6%

Table 6 shows that for both the control group and the experimental group, teachers consider that in all the elements evaluated, most of the students comply with the required exit profile; the highest percentage of fulfillment that teachers consider for the control group (92%) is related to the element of "moving through intellectual curiosity, that is, investigating the national and world reality around the topics of their interest", and the element that teachers consider the least fulfilled by the control group (50%) is "building their national identity in search of a peaceful world and valuing their multiculturalism, respecting the identities of other persons and peoples".

Regarding the experimental group, there are 4 elements in which all teachers consider that the students meet the exit profile: "assume social responsibility and have the ability to interact with heterogeneous groups, proceeding with understanding, empathy and tolerance", "adapt to the demands of teamwork in which they understand the circulating reality, respect the ideas and contributions of others", "harmonize the physical and intellectual; use their emotional intelligence to be positive, flexible, cordial and self-critical" and "know how to communicate clearly in their own language and in others, use various languages such as numerical, digital, artistic and corporal: they assume responsibility in their speeches"

Figure 2

Descriptive analysis - Teachers' survey - Question 2

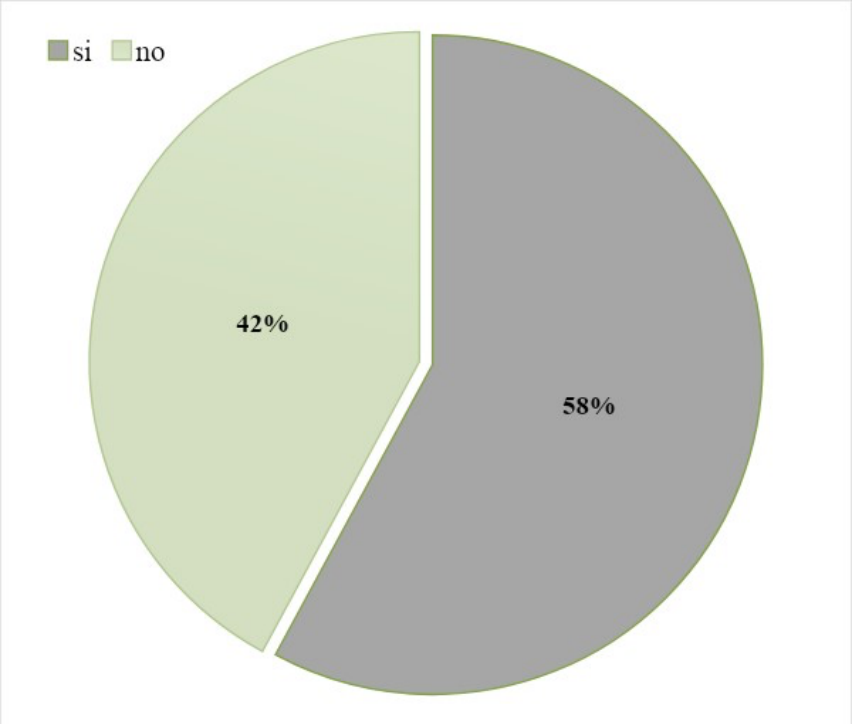

Figure 2 shows that the majority of the teachers surveyed, 58%, consider that the activities (projects: safety rules, first aid, conflict mediation, play activity, discipline practices, etc.) proposed by the PPE-COS students were useful and innovative in the educational institution, and 79% of teachers affirm that the Baccalaureate Exit Profile can be optimized.

Discussion and conclusions

The current situation of compliance with the exit profile of the control group is (29%) and they comply with 7 elements, while most of the students in the experimental group (33%) comply with 11 of the 12 elements or guidelines of the PSBE, after the intervention of the methodological proposal (See Table 5).

This study made it possible to understand the indicators of the Output profile that best meet and characterize this profile, in order to design the improvement plan through the PBA method.

A proposal has been presented that involves students in their own training through the implementation of the PBA Method.

The innovative aspect of this research work lies in its scope, since it was possible to strengthen the profile of the Ecuadorian high school graduate through direct interaction, coexistence and knowing how to preach with a fair, supportive and innovative example by high school adolescents, who developed with the Emoj-Innova proposal a good management of their

emotional skills and life skills, merging what they learned with everyday life, and thus, corroborating that education and service to others are inherent.

Since the implementation of the proposal, the positive evaluation of the students' training by the actors involved in the training process has increased.

The results of this research corroborate the need to begin to emphasize and really prioritize the development and optimization of emotional skills and life skills, which are closely linked to the exit profile that an Ecuadorian high school graduate should demonstrate, i.e. to be fair, supportive and innovative.

References

Alarcón Vega, I. (2017). *Inteligencia Emocional en los estudiantes del Tercer año del Bachillerato General Unificado del Colegio Nacional Mixto Tarqui en el periodo lectivo 2016 – 2017.* Universidad Central del Ecuador.

Carbajal, P. (2010). La convivencia como alternativa a la violencia escolar: experiencias exitosas desde Latinoamérica. In *VII Encuentro Participación de la Mujer en la Ciencia*. Centro de Investigaciones en Óptica, AC, León, Guanajuato.

Constitución de la Republica del Ecuador. (2008). Decreto Legislativo s/n, publicado en el Registro Oficial 449 el 20 de octubre de 2008 (Ecuador).

Costa, A. y Faria, L. (2015). The impact of emotional intelligence on academic achievement: A longitudinal study in Portuguese secondary school. *Learning and Individual Differences, 37*, 38-47.

Extremera, N., Fernández-Berrocal, P., & Mestre, J. (2004). Medidas de evaluación de la inteligencia emocional. *Revista Latinoamericana de Psicología*, *36*(2), 209-228. https://www.redalyc.org/pdf/805/80536203.pdf

Extremera, N. & Fernández-Berrocal, P. (2013). Inteligencia emocional en adolescentes. *Journal of Parents and Teachers*, *352*, 34-39. https://revistas.comillas.edu/index.php/padresymaestros/article/view/1170

Fernández-Berrocal, P. y Extremera, N. (2009). La inteligencia emocional y el estudio de la felicidad. *Revista Interuniversitaria de Formación del Profesorado*, *66*(23.3), 85-108.

Fernández-Berrocal, Cabello, R., & Gutiérrez-Cobo, M. (2017). Avances en la investigación sobre competencias emocionales en educación. *Revista Interuniversitaria de formación del profesorado*, *31*(1), 15-26. https://www.redalyc.org/jatsRepo/274/27450136003/html/index.html

Fierro, C. y Carbajal, P. (2003). *Mirar la práctica docente desde los valores.* Gedisa.

Fierro, C. y Tapia, G. (2012). *Una aproximación al concepto de convivencia escolar. COMIE*.

Flores Sisalima, I. C. (2013). Desarrollo de habilidades de la inteligencia emocional en niños y niñas [Bachelor's tesis]. Universidad de Cuenca. http://dspace.ucuenca.edu.ec/handle/123456789/5186

García-Sancho, E., Salguero, J.M. y Fernández-Berrocal, P. (2014). Relationship between emotional intelligence and aggression: a systematic review. *Aggressive and Violent Behavior, 19,* 584–591. http://dx.doi.org/10.1016/j.avb.2014.07.007

Gómez-Ortiz, O., Romera, E.; Ortega-Ruiz, R. (2017). La competencia para gestionar las emociones y la vida social, y su relación con el fenómeno del acoso y la convivencia escolar. *Revista Interuniversitaria de Formación del Profesorado. 31, (1).* https://www.redalyc.org/journal/274/27450136006/html/

Hirmas, C. y Eroles, D. (Coords.) (2008). *Convivencia democrática, inclusión y cultura de paz. Lecciones desde la práctica educativa innovadora en América Latina.* Oficina Regional

de Educación de la UNESCO para América Latina y el Caribe/Red Regional de Innovaciones Educativas para América Latina y el Caribe.. https://unesdoc.unesco.org/ark:/48223/pf0000162184

Instituto Interamericano de Derechos Humanos (2011). *Informe Interamericano de la Educación en Derechos Humanos: Un estudio en 19 Países. Desarrollo en las políticas de convivencia y seguridad escolar con enfoque de derechos.* IIDH. http://iidh-webserver.iidh.ed.cr/multic/UserFiles/Biblioteca/IIDH/9_2012/6860.pdf

Martins, A., Ramalho, N. y Morin, E. (2010). A comprehensive meta-analysis of the relationship between Emotional Intelligence and health. *Personality and Individual Differences*, *49*(6), 554–564. https://doi.org/10.1016/j.paid.2010.05.029

Ministerio de Educación del Ecuador. (2016). *Marco legal Educativo Codificado. Ley Orgánica de Educación Intercultural y Bilingüe.* MinEduc.

Ministerio de Educación del Ecuador. (2016). *Currículo Nacional de Educación General Básica y Bachillerado.* MinEduc. https://educacion.gob.ec/curriculo/

Ministerio de Educación del Ecuador. (2017). *Instructivo para la Implementación del Programa de Participación Estudiantil (PPE), Régimen Sierra 2018-2019.* MinEduc.

Ministerio de Educación del Ecuador. (2017). *Rutas y Protocolos de actuación frente a situaciones de violencia en el Sistema Educativo.* Ministerio de Educación.

Onetto, F. (2003). Criterios de intervención en las problemáticas de convivencia escolar. En J.Ruz & J. Coquelet (Eds.). *Convivencia escolar y calidad de la educación*. (pp. 97-112). Maval Ltda. https://es.scribd.com/document/260086227/Criterios-de-Intervencion-en-Las-Problematicas-de-Convivencia-Escolar

Ortega, R. (2007). La convivencia: Un regalo de la cultura a la escuela. *Revista de Educación de Castilla la Mancha*, *4*, 50-54. https://dialnet.unirioja.es/servlet/articulo?codigo=2506054

Pepinós-Cuchala, D. (2015). La inteligencia emocional como predictor del rendimiento académico escolar en los adolescentes. [Trabajo fin de grado]. UCE. http://www.dspace.uce.edu.ec/handle/25000/7279

Rivera-Acevedo, M. A. (2016). La violencia muestra de cada día: Entenderla para erradicarla. *Revista Electrónica Educare, 20*(3), 1–19. https://doi.org/10.15359/ree.20-3.24

Ramírez, A.Sánchez-Álvarez, N., Extremera, N., & Fernández-Berrocal, P. (2016). The relation between emotional intelligence and subjective well-being: A meta-analytic investigation. *The Journal of Positive Psychology*, *11*(3), 276-285. https://doi.org/10.1080/17439760.2015.1058968

Serrano, C., y Andreu, Y. (2016). Inteligencia emocional percibida, bienestar subjetivo, estrés percibido, engagement y rendimiento académico de adolescentes. *Revista de Psicodidáctica*, 21(2), 357-374. https://doi.org/10.1387/RevPsicodidact.14887

Tokuhama-Espinosa, T. (2015). El perfil ecuatoriano: desde la educación hacia la sociedad. Quito – Ecuador. https://doi.org/10.13140/RG.2.2.14984.06400

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THE CASE OF ACADEMIC PERFORMANCE AND SELF-REGULATION OF LEARNING IN HIGH SCHOOL STUDENTS

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Abstract. This study analyzes the extent to which academic performance is a complex and multicausal phenomenon of research interest over the years. Within this frame of reference, the objective of the research is to analyze the academic performance of basic subjects with self-regulated learning in secondary school students in Colombia. It is delimited by the line of research in: learning and education. Associated factors and strategies. Educational psychology. A mixed sequential methodology is used with equal research weight for both approaches. This is a descriptive-correlational design, whose sample was composed of a N=395 students aged 10 to 17 years. The results obtained show that the students' mastery of fundamental competencies for the acquisition of basic skills is low. On the other hand, the use of cognitive strategies and academic performance allows validating that students with higher and high value judgments develop more motivating and autonomous modes of involvement, which correlates with successful academic performance. It is concluded that it is imperative to prioritize the improvement of educational quality in secondary education oriented to proactive learning, to be a social learner, to strengthen emotional development, to strengthen continuous evaluation and to promote student self-regulation in order to improve learning. Likewise, the development of self-regulation skills as a teacher-researcher-innovator is proposed as a challenge for the teacher.

Key words: academic performance, self-regulation of learning, education secondary.

EL CASO DEL RENDIMIENTO ACADÉMICO Y LA AUTORREGULACIÓN DEL APRENDIZAJE EN ESTUDIANTES DE SECUNDARIA

Resumen. Este estudio analiza en qué medida el rendimiento académico es un fenómeno complejo y multicausal de interés en la investigación a lo largo de los años. Dentro de este marco de referencia, el objetivo de la investigación plantea analizar el rendimiento académico de las asignaturas básicas con el aprendizaje autorregulado en las estudiantes y los estudiantes de educación secundaria en Colombia. Está delimitado por la línea de investigación en: aprendizaje y educación. Factores y estrategias asociados. Psicología educacional. Se utiliza metodología mixta secuencial con igual peso investigativo para ambos enfoques. Se trata de un diseño

descriptivo-correlacional, cuya muestra estuvo compuesta por un N=395 estudiantes con edades entre los 10 y 17 años. Los resultados obtenidos evidencian en los estudiantes, el bajo dominio de competencias fundamentales para la adquisición de habilidades básicas. Por otra parte, el empleo de estrategias cognitivas y el rendimiento académico permite validar que los estudiantes con juicios valorativos superiores y altos desarrollan modos de implicación más motivante y autónoma, lo cual se correlaciona con el rendimiento académico exitoso. Se concluye que es imperativo priorizar la mejora de la calidad educativa en la educación secundaria orientado al aprendizaje proactivo, para ser un aprendiz social, afianzar el desarrollo emocional, fortalecer la evaluación continua y promover la autorregulación del estudiantado con miras a mejorar el aprendizaje. Asimismo, se propone como un desafío para el docente, el desarrollo de las habilidades de autorregulación como profesor-investigador-innovador.

Palabras clave: rendimiento académico, autorregulación del aprendizaje, educación secundaria.

Introduction

Today's society is in constant change, the Educational Institution is the natural environment that generates learning, its dynamics makes it complex and has a direct impact on it; in fact, what happens in the school is influenced by the policies, resources and practices generated in the structure of the educational system. Improving the academic performance of a system involves transforming the learning experience of its student body[1]. The main and ultimate goal of the educational institution is to ensure that its students reach quality educational levels.

The study is expected to rethink pedagogical practice in order to redefine learning, a permanent advance of construction underlying the teacher-learner relationship. Therefore, having the conviction that the educational process should focus today on the learning of students and young people and not only on the work of the teacher, it is justified to open the possibility of changing such practices that we have traditionally lived.

In terms of knowledge generation, it is intended that teachers, through reflection and questioning of teaching, assume an authentic commitment to relearn the mastery of their discipline, contribute to the integral formation of students through contextualized educational processes, direct strategies to improve classroom planning and cultivate meaningful teaching practices; a self-managed goal to increase learning in all curricular areas that require more improvement, and involves the realization of holistic research proposals that allow the school to attest to an effective change and continuous improvement.

This is achieved by taking into account the unique histories of students, making visible what they have to say in each of the scenarios that affect them when learning, analyzing their attitudes, dispositions, beliefs, family environment and their school and learning experiences. In short, to enrich the educational relationship between teachers, students, classroom climate and the institution in which the educational process takes place in order to achieve fundamental, humanistic competencies and their full participation in society.

The study of academic performance and self-regulation of learning is one of the many constants to be clarified in the field of pedagogical research, in relation to the purpose of this research, are delimited by the line of research in: learning and education. Associated factors

[1] In the case of Colombia, the state has legislated on inclusive language. There are several laws, agreements and policies in favor of inclusive education. "In this article the feminine and masculine gender was used simultaneously, without closing the current debate on the subject. For this reason we believe it is pertinent to emphasize that there is no political intention to exclude those who do not identify with a binary logic"

and strategies. Its novelty and innovation lie in the realization of a new theme in a new context of continuous improvement of the teaching-learning process.

The concept of academic performance is highly complex due to its multifactorial nature. It has been a recurring theme in research; arguments about the relevance of education justify its importance and explain the interest in continuing research to reverse the factors that produce differences in performance. There are studies that highlight the problem faced by educational institutions in their mission to educate due to the low level of learning among their students and to redirect the educational process.

Based on empirical evidence, explanatory models of teaching-learning and school performance in Educational Psychology: they are a conceptual structure halfway between the theoretical explanation and the description offered by the empirical data (Miñano et al., 2012).

The studies and theoretical contributions between academic performance and self-regulation can be considered one of the most fruitful lines of research in the field of learning about the factors that affect it. Recent research in this field has found singularities that correlate school performance with self-regulation of learning. Academic goals, learning strategies and academic performance (Rodriguez et al., 2014); High and low performance in self-regulated learning variables. Learning and individual differences (DiFrancesca et al., 2016); Attributional style and academic performance (Houston, 2016); Academic performance and homework involvement (Valle et al., 2018); Self-efficacy and the utility between self-regulated learning strategy knowledge and use (Cerezo et al., 2019). For this reason, these results provide empirical evidence to improve the teaching-learning processes from the students' point of view.

In the field of research on self-regulation of learning, it is a cyclical process because it emphasizes the interaction between personal, behavioral and environmental factors. Zimmerman's model (Zimmerman, 2000) is based on the socio-cognitive theory that explains the self-regulation of learning through an active, strategic, cyclical and recurrent model, a process developed by students when they are aware of their own cognitive, socio-affective and motivational processes (Zimmerman and Moylan, 2009).

Since the empirical review of the literature, self-regulation of learning (SRL) has attracted the attention of researchers. The vast majority of correlational studies agree that differences in academic performance, learning strategies and self-regulation can be explained, to some extent, by the multiple goals of young women and men students. Academic goals, cognitive and self-regulation strategies, motivational profiles (Valle et al., 2018); Goal orientation and self-concept profiles (English et al., 2015); Perceived support, resilience, goals and self-regulated learning (Gaxiola and Gonzalez, 2019); Academic goals, strategies and self-efficacy (Barca et al., 2020).

This research work seeks to support the need and interest in improving academic performance through self-regulated learning as an object of study. Based on these theoretical elements, an exploratory, descriptive-correlational, mixed descriptive-correlational study is proposed, whose general objective is to analyze the academic performance of basic subjects with self-regulated learning in secondary school students. The central hypothesis implies that the quality of school performance is related to the capacity for self-regulation; that is, the higher the level of self-regulation, the higher the academic performance.

Method

Design

The exploratory research had a mixed approach with equal research weight for both approaches (qualitative and quantitative). Its descriptive, correlational and sequential methodology; between the variables academic performance and self-regulation of learning, in accordance with the problem statement and theoretical framework defined.

Participants

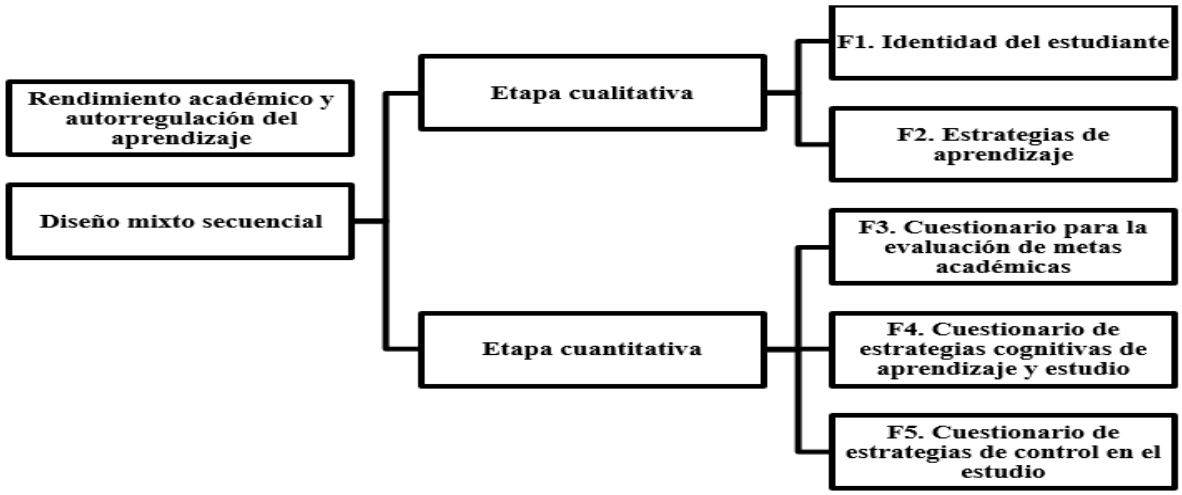
We worked with a probability sample composed of 395 students, 208 males and 187 females, with a mean age of 14.6, SD = .69, confidence level of 95% and margin of error of 3%; which are part of the population universe of 627 people of school age in public secondary education at the basic and middle vocational levels of the Santo Tomás Technical Institute, municipality of Zapatoca, Santander/Colombia.

Instruments

The research is composed of two stages and five phases, in which five instruments were used, two semi-structured interviews for the qualitative approach and three questionnaires for the quantitative approach. As presented graphically in Figure 1.

Figure 1

Mixed methodological design phases: qualitative-quantitative



Procedure

Before administering the tests, the necessary permissions were obtained both from the institution's management team and from the fathers, mothers and/or guardians of the participants, in compliance with current regulations on informed consent, in a conscious and voluntary manner. A survey validated through two specific processes was used: expert judgment (who evaluate the internal consistency and corresponding contextual adequacy).

Data analysis

For data collection, qualitative research techniques were used, such as: field diary, formal and informal dialogues, participant observation, review of sources and semi-structured interviews. One of the fundamental principles was to know one's own reality from the perspective of the participants, this analytical process allowed visualizing the emergence of

meanings, logics, patterns and atypical cases, quotes, descriptive and analytical memos that were configured in previous, aprioristic, emergent and axial categories during the processing of information collected through the various instruments used and in confrontation with the theoretical foundation.

The information obtained was analyzed based on a process of temporal, spatial and speculative dialectical triangulation, established from the problem and structured the research object of study through the use of Atlas.ti version 8 software.

In the first stage of a qualitative nature, phase one, a semi-structured interview, Adaptive Learner Identity Test (LIQ), was applied. Its purpose was to define a group of statements with open-ended answers referring to their learning inclinations and their identity as learners (conceptions, strategies and feelings).

During phase two, a semi-structured interview on learning styles was applied. It explored the way in which students carry out all their learning. It is made up of four aspects: cognitive aptitudes and abilities; school motivation; learning skills and study techniques.

On the other hand, in the quantitative stage, an exploratory factor analysis was performed in order to evaluate the degree to which these items measured multidimensional constructs, using principal component analysis as the extraction method and Varimax Normalization as the rotation method; its purpose was to establish with greater precision the underlying dimensions, constructs or latent variables of the observed variables, with the help of SPSS 25 software.

The KMO sample adequacy measure, represented with averages between .920 and .950, and Bartlett's test of sphericity, whose resulting significance level is .000, support the appropriateness of factoring the variables in each of the questionnaires.

Pearson's correlation coefficient is an indicator that made it possible to establish the joint covariation of the two variables and, on the other hand, to obtain sufficient universality to be able to establish comparisons between different cases. The relationship between the different subscales of the questionnaires was studied, a process by which the mean, standard deviation, skewness and kurtosis were calculated: the results showed favorable trends. (In the case of the mean, there was a positive correlation $r > +1$)

In this exploratory study, one of the objectives was to evaluate the correlation of academic performance in the subjects of mathematics, Spanish, natural sciences, social sciences and English, with the response categories grouped in the respective factors. The Tau Kendall bivariate correlation coefficient was applied.

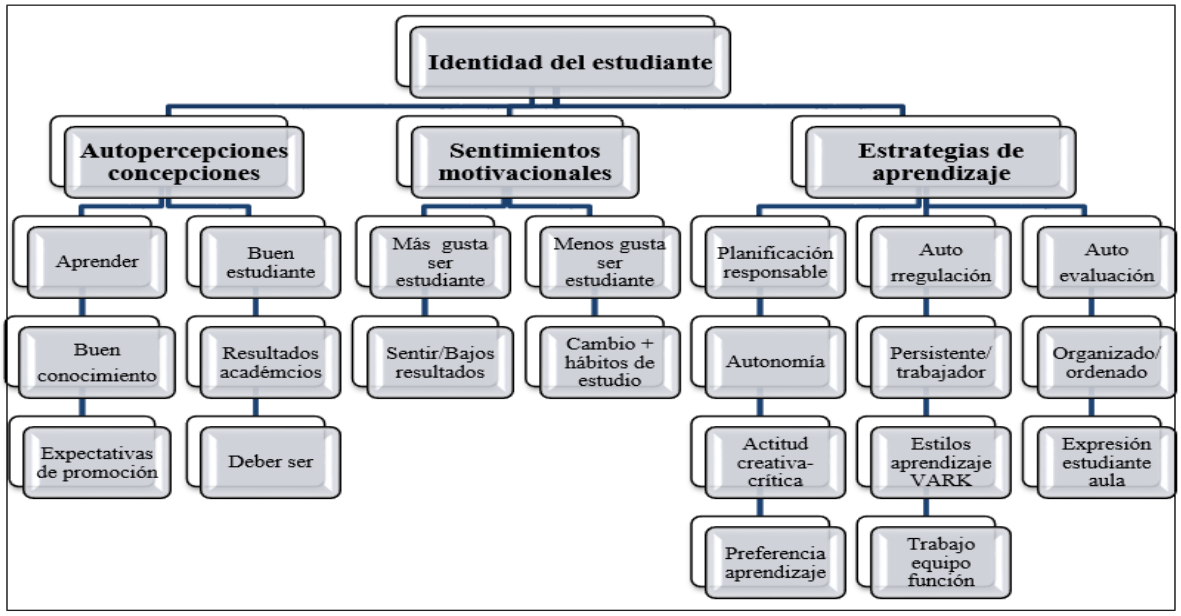
To analyze the results of each questionnaire, a classification of the questionnaire responses was performed using Multiple Correspondence Factor Analysis (MCA), followed by a classification analysis (CA) applied on the MCA coordinates, using SpaD-N software.

Results

The results of the qualitative stage, phase one, guaranteed the diagnosis of self-perceptions about academic performance, learning styles and strategies in students and students. Figure 2, shows graphically the core category student identity with its respective sub-categories (See link Figure 2).

Figure 2

Core category student identity with its respective sub-categories (conceptions, strategies and feelings)



Note. Source: own elaboration.[2]

From the data obtained in Figure 2, it was possible to observe that the conceptions, support strategies and motivational feelings allowed the adolescents and young people to maintain a mental state conducive to learning, improve their self-concept, reduce anxiety, direct attention to homework, change study habits and implement a school adjustment to improve their academic expectations.

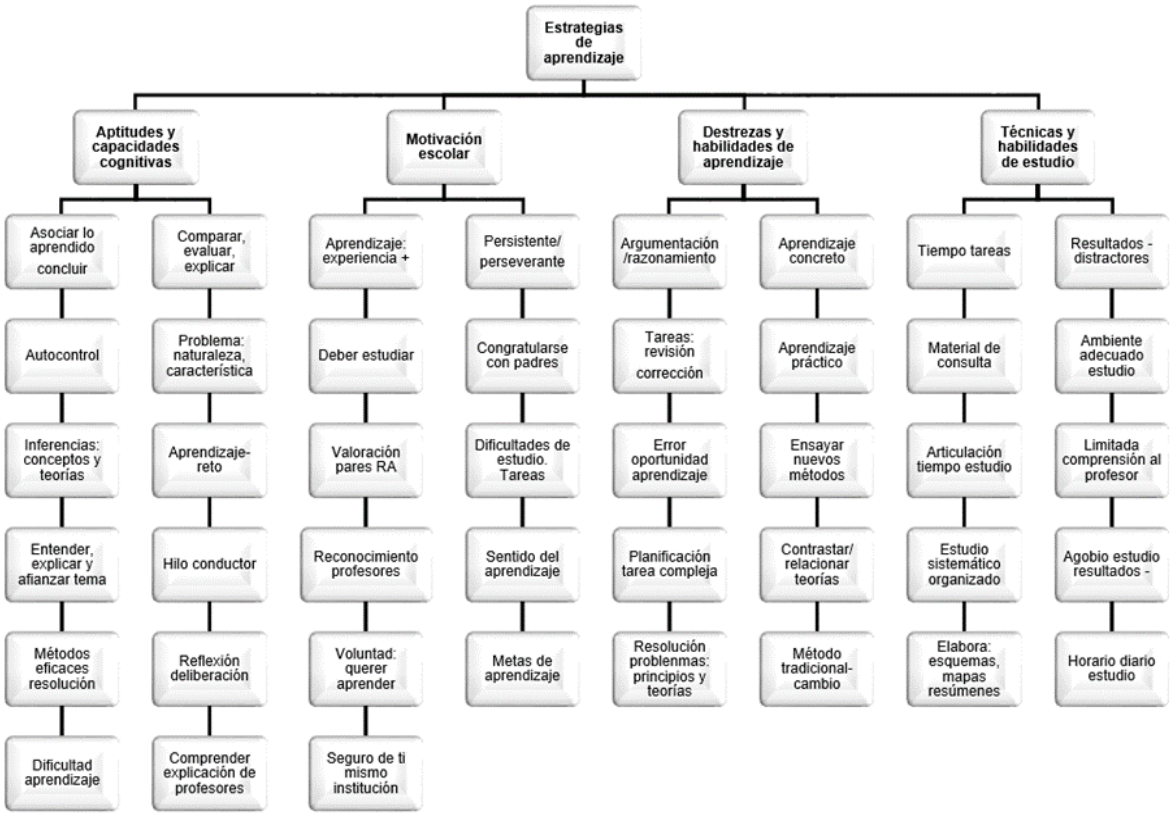
The sequence of analysis carried out so far with all the above information, evidences the dimensions related to attitudes towards study; learning strategies and support.

Along the same lines, the qualitative results of phase two are configured with the dimensions of analysis. The following image shows the integration of the core category learning styles. Subcategories (attitudes and cognitive abilities, school motivation, learning skills and abilities, study skills and techniques) (see Figure 3).

Note:[2]Figures two (2) and three (3) are the result and construction of previous, aprioristic, emergent and axial categories in the qualitative phase elaborated with Atlas.ti software software (Version 8) Link: core category Student Identity.

Figure 3

Core category learning styles. Subcategories (attitudes and cognitive abilities, school motivation, learning skills and abilities, study skills and techniques)



Note. Source: own elaboration.[3]

Based on the data obtained in Figure 3, it is possible to understand how learning styles, together with other variables, are closely related to academic performance. Different factors are involved, such as intellectual level, personality, self-esteem, motivation, aptitudes, interests, study habits, and teacher-student relationships. (See link Figure 3). The integration of the mixed methodological process led us to holistically correlate the emerging results.

On the other hand, data related to academic performance and self-regulation of learning were collected throughout the quantitative stage. *In phase three, the questionnaire for the evaluation of academic goals CEMA II,* Nuñez (1997) was applied.

It allowed us to know the main motives through which students strive for academic performance, centered on four categories: (a) task-related, (b) self-esteem, (c) social valuation and (d) achievement of external rewards (a) task-related, (b) self-esteem, (c) social valuation and (d) achievement of external rewards.

Correlation matrix analysis

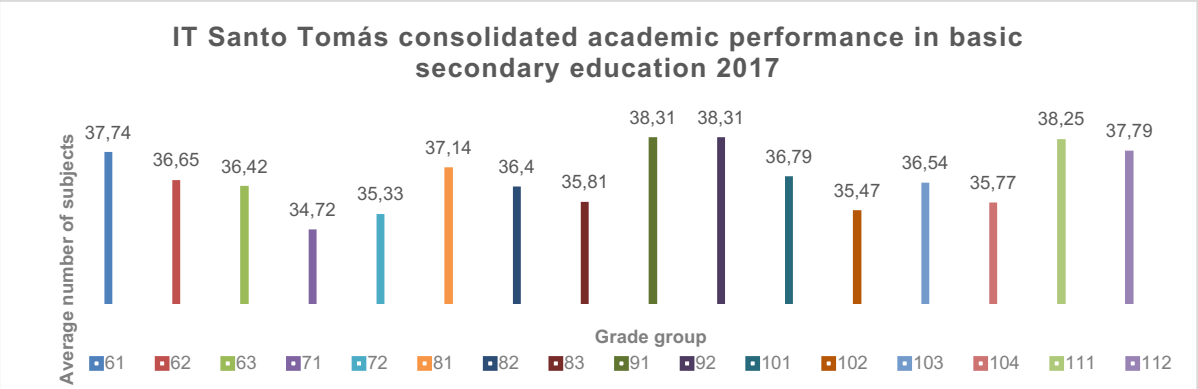
Since the CEMA II questionnaire has qualitative variables and one of the objectives was to verify whether or not there is a correlation between the answers to each of the components of the questionnaire and the academic results in the subjects, the Tau Kendall coefficient was applied. Under this conceptual and procedural premise, the consolidation of grades on academic

Note:[3] Link: core category learning styles.

performance in secondary education was referenced, with basic assessment indicators, according to the institutional evaluation system in all subjects of the curriculum. (See Figure 4).

Figure 4

Consolidated academic performance in basic secondary education



Note. Source: Prepared by the authors based on information obtained from the institutional platform.

The methodological process involves finding the matrix of correlations between the categories of the CEMA II, with the academic performance in the stipulated subjects.

The information contained therein allowed us to differentiate the following types of goals: achievement or reward, learning-oriented, as shown in Table 1.

Table 1

Correlation results: Components CEMA II and Mathematics, Language Arts, Natural Sciences, Social Sciences and English

Correlation results: CEMA II components and mathematics, language, natural sciences, social sciences and English		
Component	**Appearance**	***p-value* Tau-Kendall**
Decent future	32. I work hard in my studies because I want to get a good job in the future.	0.041
Competence and control	9. I work hard in my studies because the more I know, the more I feel in control.	0.039

With the purpose of advancing in the understanding of the results, it can be affirmed that the academic performance in the described areas presents correlation, but not as revealing as the degree to which the items (32 and 9) do, p-value Tau-Kendall represents a very significant correlation close to $p<.05$, on the contrary, the correlation with the other components: punishment avoidance, interest, defensive involvement, social and improvement is low or weak.

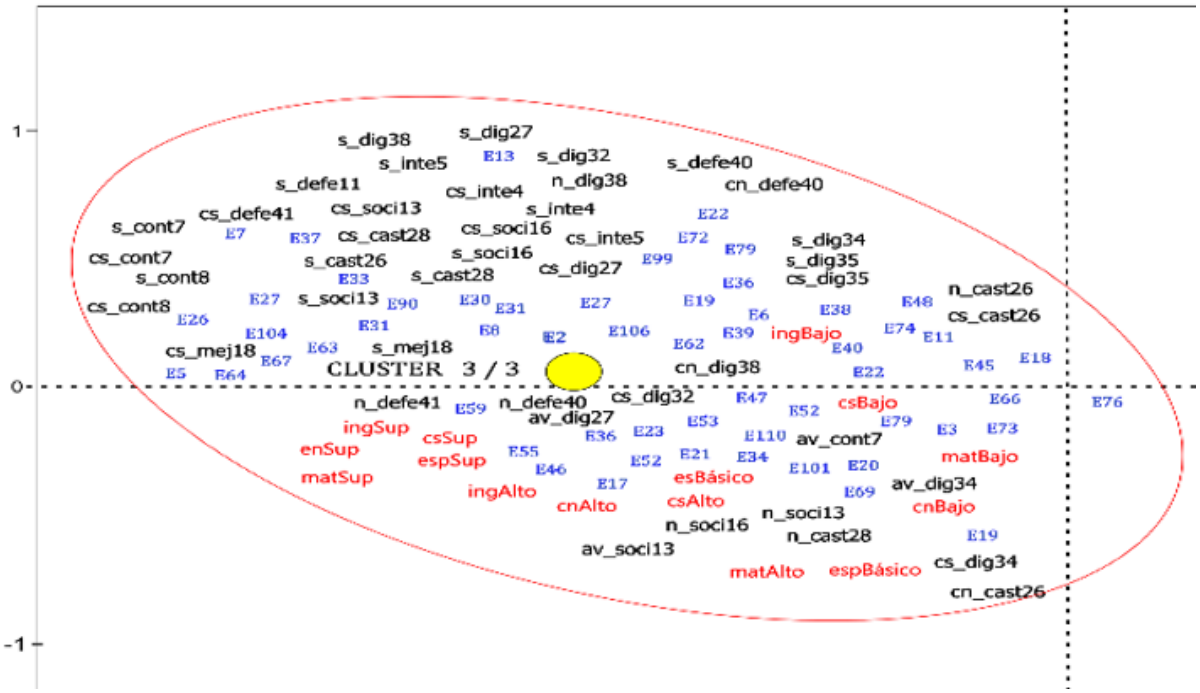
Multivariate analysis

Figure 5 shows graphically the Multiple Correspondence Analysis (MCA) factorial plane.

Three groupings of students obtained from a classification analysis applied on the MCL coordinates are identified in the figure. To identify the students, the letter E was used as a code, where E1 represents student one and so on from i = 1, 2, 3, ...n in each of the clusters.

Figure 5

ACM factorial plan with response categories - CEMA II



Note. Source: own elaboration.[4]

The factorial plane was able to define a CEMA II factor indicator that distinguishes three groups of students. In this order of ideas, cluster three is related to the highest representative percentage with 78.75% of the total, composed of 63 students.

A group of students with higher level academic ratings, respond always and almost always in the factors of involvement for improvement, control, worthy future, interest, social, defense and punishment; in general the characterization establishes that:

Students always and almost always make an effort to study because it is in their parents' interest to value them positively. Similarly, they show interest in being independent and autonomous.

They are apprentices who are concerned about their future because they do not want to be unemployed and want a well-paid position. They make an effort not to fail evaluations, they almost always make an effort to study when they like the subject matter and enjoy what they learn, they are interested in the point of view of the people important to them about their academic performance.

Another collective, within this map, is characterized by the fact that they are not interested in being autonomous or independent. It is inferred that academic performance is

Note:[4] Link for more information: factorial plane Multiple Correspondence Analysis CEMA II. ACM-CEMA II.pdf

lower to the same extent that negative attitudes are higher, on the one hand, the negative evaluation of themselves as students when approaching study and learning tasks.

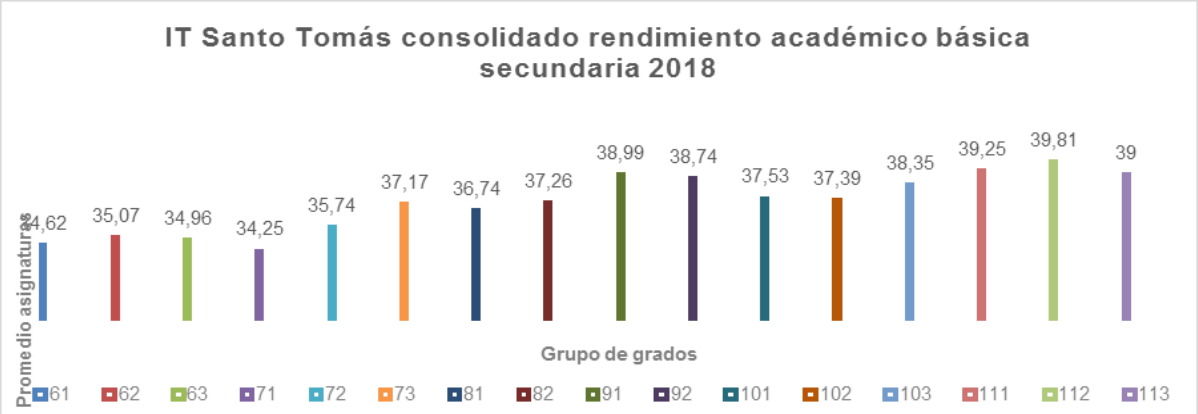
In the second quantitative stage. Phase four. The CECAE Cognitive Strategies for Learning and Study Questionnaire (Weinstein et al., 1987) was applied. The items are distributed in four dimensions: (Valle et al., 2006). These strategies are: a) selection, b) organization, c) elaboration and, d) memorization.

Correlation matrix analysis

This work aims to change an undeniable reality and seeks to motivate students to improve their academic performance, in this sense, the management and teaching staff must generate a great commitment to systematically and rigorously develop teaching situations so that students learn in context and overcome learning difficulties. The above argument is based on the consolidated grades for the 2018 school year, where no significant improvements in their training can be seen; as evidenced in Figure 6.

Figure 6

Consolidated academic performance for the 2018 school year



Note. Source: Prepared by the authors based on data obtained from the institutional platform.

The methodological sequence involves finding the correlation matrix between the CECAE categories. The results obtained document significant correlations in particular items (7, 19) whose Tau-Kendall p-values are close to $p < .05$, as detailed in Table 2.

Table 2
Correlation results: CECAE and Mathematics, Language Arts, Natural Sciences, Social Sciences and English components

Correlation results: CECAE components and mathematics, language, natural sciences, social sciences and English		
Component	**Appearance**	***p-value*** **Tau-Kendall**
Organization-planning.	7. I have little ability to summarize what I read and/or hear.	0.040
Control-consolidation strategies.	19. While reviewing the materials for a class, I am doing the practical work or assigned activities.	0.021

The study analyzed up to this point allows us to identify a series of general tendencies in the understanding of the results, it can be affirmed that the academic performance in the mentioned areas reflects a positive correlation, however, it is not as significant as the items (7 and 19).

Multivariate analysis

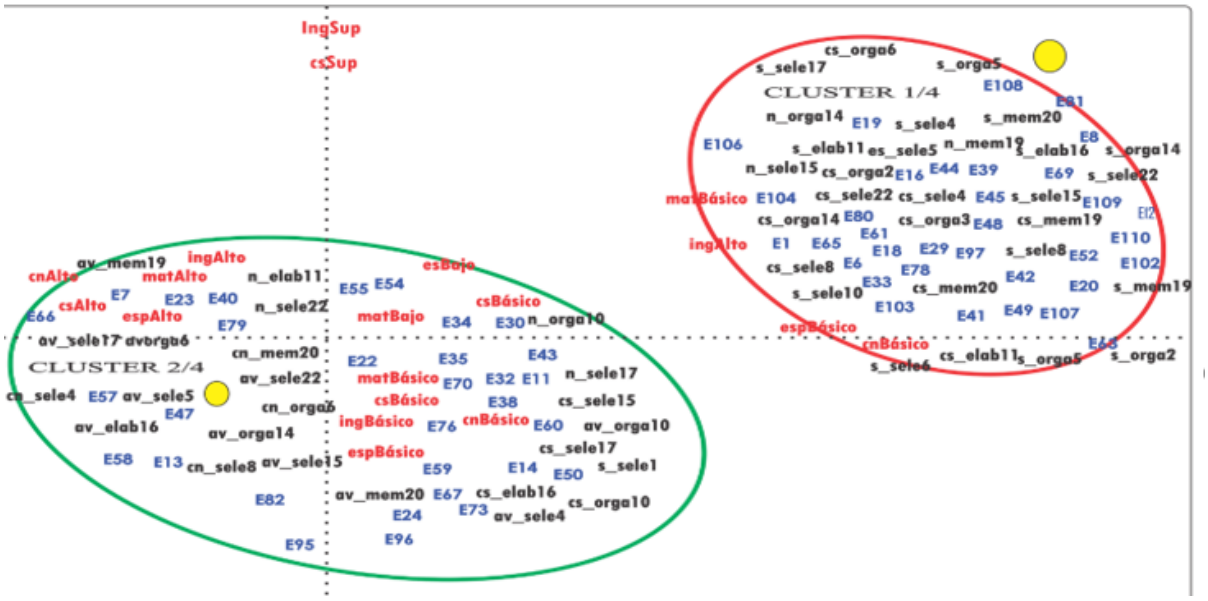
Figure 7 graphically represents the Multiple Correspondence Analysis (MCA) factorial plane applied to the response categories of the aforementioned factors. Four clusters of students were identified from a classification analysis applied to the MCL coordinates.

In the factorial map, the interpretations of the two axes are combined, showing a positioning of the students, forming four groupings, which is determined by an association between the response categories on the factors contemplated by the CECAE questionnaire and the answers given.

Next, the clusters with the highest representative percentage are listed. Cluster one accounts for 48.75% of the total, comprising 49 students. Regarding the organization factor they almost always find it difficult to organize, plan how to study and comply, they always have difficulties to understand the questions in the evaluations.

In contrast to the above, it can be indicated that this group of students always read at home the texts suggested to them in class. They almost always make diagrams, graphs and concept maps to summarize the contents of a subject. A large majority of this group has basic academic performance in the different subjects and high performance in English.

Figure 7
ACM factorial map with response categories - CECAE



Note. Source: own elaboration.[5]

Cluster two represents 28.75% of the total, composed of 23 male and female students. They stated that they almost never finish something that is boring. When studying, they sometimes fixate on the important concepts of the subject. They recognize that they find it difficult to organize and plan how to study and follow through.

Finally, in the third stage of a quantitative nature, phase five; the control strategies questionnaire was applied in the ECE study Hernández, and García, 1995. It consisted of determining whether they are in correspondence with the strategies used, both at the beginning of the study, during the study and at the end of the study.

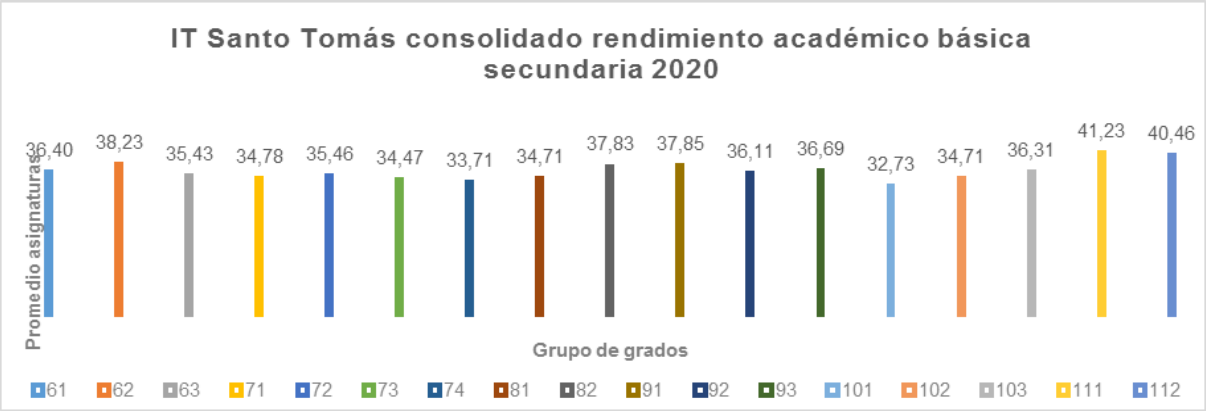
It focuses on three types of self-regulation strategies: a) supervision, related to monitoring the study process; b) planning study activities; and c) revision.

Correlation matrix analysis

If we take as a reference the academic history of the institution, quadrennium 2017-2020; it is important to note that, a good number of students, especially those who obtain a basic and low performance, claim to find it difficult to study and, in addition, the vast majority of their teachers usually agree with this problem. It is important to mention that there was an increase in school dropouts and grade loss due to Covid 19. See Figure 8.

Note:[5] Link for more information: factorial plane Multiple Correspondence Analysis CECAE. ACM-CECAE.pdf

Figure 8
Consolidated academic performance school year 2020



Note. Source: Prepared by based on information obtained from the institutional platform.

The methodological progression involves finding the correlation matrix between the categories of the ECE questionnaire. The results obtained show significant correlations, especially for items (4, 16 and 10) whose Tau-Kendall p-values are close to $p < 0.5$. As specified in Table 3.

Table 3
Correlation results: Components ECE and Mathematics, Language Arts, Natural Sciences, Social Sciences and English.

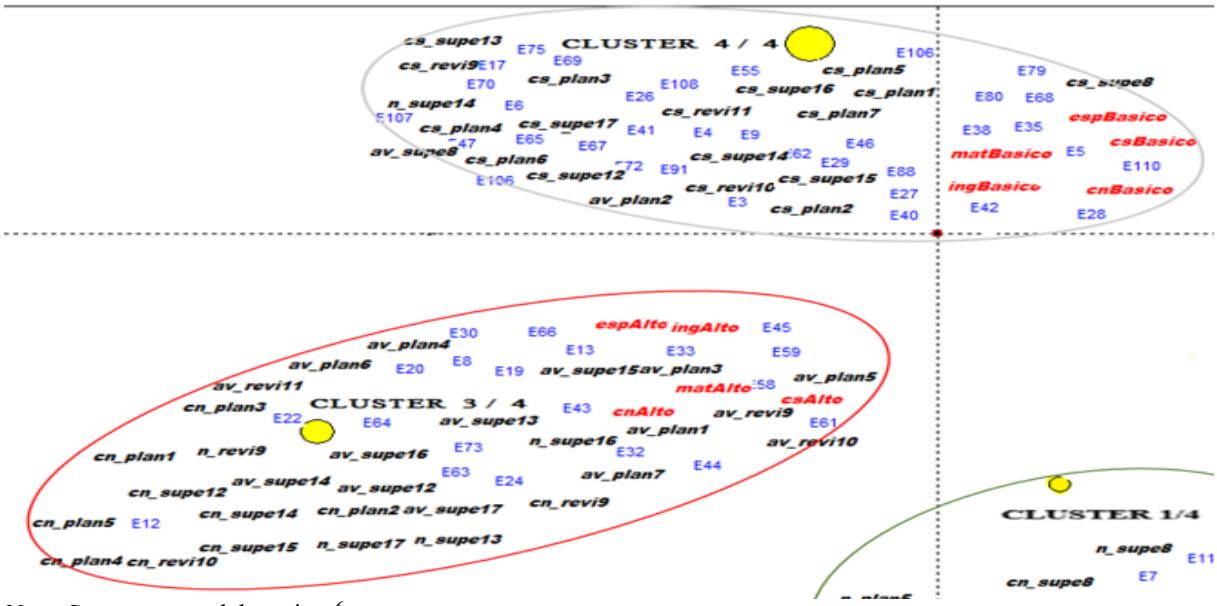
Correlation results: ECE components and mathematics, language, natural sciences, social sciences and English.		
Component	**Appearance**	***p-value* Tau-Kendall**
Planning.	4. When studying I usually establish a study planning and method.	0.037
Supervision.	16. When I have finished studying, I try to relate what I have studied to the exam or to what the teacher asks me to do.	0.039
Review.	10. When I am faced with a problem, I try to find a solution as a matter of priority.	0.033

These results are consistent and support the urgent need for educational intervention to improve academic performance through self-regulation of learning.

Multivariate analysis

Figure 9 graphically represents the Multiple Correspondence Analysis (MCA) factorial plane applied to the response categories of the aforementioned factors. Four groupings of students obtained from a classification analysis applied on the MCL coordinates are identified in the scheme.

Figure 9
ACM factorial plane with response categories - ECE



Note. Source: own elaboration.[6]

The following lines explain the relationship of the clusters with the highest representative percentage. Cluster four represents 47.50% of the total and is made up of 38 students. In this grouping, the three factors of ECE, i.e. planning, review and supervision, are present.

Regarding the planning factor. Almost always before starting to study, they consider the aspects to study, they distribute the time in priority order to do the school activities, they supervise their learning by consulting new sources to make it easier for them to understand the subject. Regarding the review factor, almost always when they do not understand a topic they move on to try to clarify the topic for themselves.

Corresponding to cluster three characterizes 31.25% of the total, composed of 25 students. The characterization of the group is as follows: regarding the planning factor, this group states that sometimes when they study they take into account what is important. Regarding the supervision factor, sometimes he reviews what he does not understand to try to learn it well, at other times, when he does not succeed, he consults the opinion of peers to see if he is doing the right thing and he usually makes a general review to detect errors.

Discussion

In recent decades, a solid body of research has addressed the relationship between how students manage their learning process and academic outcomes (Schelfhout, 2006; Rosário, 2010a, 2013a). This relationship implies the set of beliefs manifested by the learner about his or her capacity to correctly apply the knowledge and skills he or she already possesses and about his or her position in relation to new learning.

The results found in relation to the purpose of the research are in line with the theoretical contributions between academic performance and self-regulation of learning. In particular,

Note:[6] Link for more information: factorial plane Multiple Correspondence Analysis ECE. ACM-CECE.pdf

there is agreement on the predictive capacity of the former with respect to the latter (Gaxiola and González, 2019) Academic goals, cognitive and self-regulation strategies, motivational profiles (Valle et al., 2018); Academic goals, learning strategies and academic performance (Rodríguez et al., 2014); Goal orientation and self-concept profiles (Inglés et al., 2015). These types of goals are nowadays considered as dependent and interrelated variables, which are predictors of school success.

In this sense, it is important to propose to the students a horizon of commitment to the activities developed in their school context, without forgetting an attitudinal change, both in their expectations and academic goals as well as in the organization and planning of study with their areas of training. These aspects are fundamental given the cognitive, socioemotional and motivational demands involved in the formative process at the Secondary Education stage.

From the foregoing, concordances are found with the study conducted by Houston (2016), with 957 secondary school students in high and low performing schools in the General Certificate of Secondary Education (GCSE) in the United Kingdom. It confirms that a stable and controllable internal attributional style of success and failure outcomes is related to good academic performance.

On the other hand, the scope would be on the side of teachers because they have the co-responsibility of increasing their personal and social formation, since they must face problems of behavior, attitudes and relationships, which are intertwined in the evolution of the student's life and the classroom. Consequently, teachers must be aware that, beyond teaching, the priority is learning. It involves focusing more on what the student learns than on what the teacher teaches.

The results of the qualitative stage indicate that the first objective of the research was oriented to diagnose the self-perceptions about academic performance, learning styles and strategies in young women and students. Their findings provide additional support to the hypothesis posed at the beginning of this study, where students manifest multiple factors and causes that affect their academic performance with respect to their capacity for autonomous study, due to personal and family circumstances, as well as others associated with the educational system itself.

In the following section, the results of the quantitative stage are discussed. Indeed, relevant authors in the research on academic goals and causal attributions state that the goals pursued by students in their teaching/learning processes are of different types and can be considered from different perspectives depending on the differentiated optics of the authors researching in the field. (Barca-Enriquez et al., 2015; Pintrich, and Schunk, 2006; Ramudo et al., 2017 as cited in Barca et al., 2020, p. 10)

With reference to learning goals, it is essential to point out that students orient their learning style towards the development of their own competencies; thus, they are motivated by the act of learning and, as a consequence, improve their knowledge and skills.

This research presents similar results, with the uses reported by the students considered positive for their future, since a greater self-management of high expectations in their academic training can be expected, according to a study by Pérez et al., (2009).

The findings presented up to this point show the concordance of the academic goals in relation to the first hypothesis, in the sense that the students manifest multiple conditioning factors that affect their academic performance with respect to their capacity for autonomous study, due to personal, social and scholastic factors.

Classroom experience with students with basic and low performance shows that, in most cases, these students are unmotivated to study, do not know how to study, present learning difficulties, show little efficient use of study time, lack study habits and methods, goals and learning strategies.

It is evident that some have a specific way of learning that is linked to their personal characteristics and the motivation they have to achieve academic objectives, in that order of ideas, the strategies used must be adapted to the needs, resources and capabilities that the subjects have, this will involve the development of different cognitive and meta-cognitive processes (Visbal, et al., 2017).

In general, students, young people with low and basic academic performance have a negative self-concept and assume that they are not "smart", their peers are "better" than them and the self-fulfilling prophecy occurs: "why study if in the end I am not capable". In fact, it minimizes their expectations of school success; it is proven that, if they do not learn strategies, how do they make use of them, to improve their learning.

According to the above, to achieve strategic and autonomous learning based on the concept of learning some educational institutions have opted for the implementation of learning strategies which are intentional in nature and involve a plan of action through which the cognitive operations that are employed when a subject has to face the task of learning are strengthened (Gasco, 2017).

The present study confirms the previous findings and contributes to the evidence by suggesting a probable explanation in accordance with the second hypothesis; to the extent that learning strategies are incorporated, students will be able to learn and substantially improve their academic formative process.

Students say that they sometimes prioritize the different activities in order to establish an order of priority. Almost never, they distribute the time for each of the aspects in question before getting ready to study.

High-achieving young men and women students, as compared to basic and low-average students, show a more strategic and adaptive learning approach during all phases of their learning process. They orient themselves and plan more strategically and effectively, combine different cognitive strategies, and adopt self-assessment to regulate their learning process (DiFrancesca et al., 2016).

According to different theoretical approaches, the use of self-regulated learning should favor better learning and academic achievement (Zimmerman, 2013a). Successful students and adolescents are generally described as "self-regulated learners" because they are able to generate a series of thoughts, feelings, and actions on their own, systematically oriented toward achieving their goals. (Cerezo et al., 2019, p. 2)

This strategic action at the academic level is the one that can guarantee significant improvements in the academic performance of the different subjects to the extent that the teachers in class work with the students on the declarative, procedural and conditional knowledge of learning strategies, explicitly and intentionally teaching a wide range of strategies and practicing them in the specific context of the different subjects.

The key is how to help students cope with their learning in an intentional, autonomous and effective way, a process called "self-regulation of learning" (Panadero and Alonso-Tapia, 2014).

Therefore, the large amount of research developed on self-regulated learning in students, together with the new way of understanding the way in which teachers develop their educational task, constitute the basis for research on self-regulated learning in teachers.

Consequently, the research approach supports the idea that the expected change in students' self-regulated behavior is not domain-specific, but transcends domains and learning agents. The results obtained support and validate the proposed hypothesis that the quality of school performance is related to the capacity for self-regulation; that is, the higher the level of self-regulation, the higher the academic performance.

Conclusions

In line with the above, we propose greater efficiency, both in terms of student learning and teacher teaching: prioritizing the improvement of educational quality in secondary education means placing students at the center of learning. In other words, to promote and build a wide range of strategies, taking into account that students and teachers are social learners. Likewise, recognizing individual differences, fostering emotional development, strengthening continuous assessment, and encouraging student self-regulation are key to improving learning.

The research has some limitations, which should be taken into consideration for future research. First, it is considered interesting to extend the study of academic performance to students at other educational levels. Similarly, it would be relevant to consider other related variables such as gender, school type, as well as other social and cultural aspects.

The implications and recommendations of this study suggest that: learning is building horizontal connections. The proposals for improvement require that the agents involved in the educational community commit themselves to tasks such as: at the institutional level, the academic component must prioritize a pedagogical self-diagnosis of the teaching staff; it requires the creation of interdisciplinary structures to improve the culture of institutional self-evaluation; a school open to the environment and permeable to updated knowledge.

From an ethical perspective, the teaching manager should be the key actor in the process of transforming the management of the educational institution through continuous improvement plans on the quality of education and that in sum, the teacher increases the quality of his teaching and in practice is the engine that achieves this change, as a community of lifelong learning. It is about advancing and maturing as a collective, from a horizontal, non-hierarchical vision of continuous improvement.

References

Alonso-Tapia, J., Huertas, J. A., & Ruiz, M. A. (2010). On the nature of motivational orientations: Implications of assessed goals and gender differences for motivational goal theory. *The Spanish journal of psychology, 13*(1), 232-243. https://doi.org/10.1017/S1138741600003814

Barca Lozano, A., Peralto Esquiando, M., Porto Robo, A. M., Marcos Malhiera, J. L., & Breílla Blanco, J. C. (2011). Metas académicas del alumnado de Educación Secundaria Obligatoria (ESO) y Bachillerato con alto y bajo rendimiento escolar. *Revista de educación*, *354*, 341-368.

Barca-Lozano, A., Almeida, L. S., Porto-Robo, A. M., Peralbo-Uzquiano, M., & Breílla-Blanco, J. C. (2012). Motivación escolar y rendimiento: impacto de metas académicas,

de estrategias de aprendizaje y autoeficacia. *Anales de Psicología/Annals of Psychology, 28*(3), 848-859. https://doi.org/10.6018/analesps.28.3.156101

Barca-Enriquez, E., Brenlla, J. C., Peralbo, M., Almeida, L. S., Porto, A., & Barca, A. (2015). Habilidades cognitivas, autoeficacia y estrategias de aprendizaje: indicadores y determinantes del rendimiento académico en el alumnado de educación secundaria. *Revista de estudios e investigación en psicología y educación*, 083-089. https://doi.org/10.17979/reipe.2015.0.01.460

Barca, E., Breílla, J., Mascarenhas, S., & Barca, A. (2020). Metas académicas, estrategias y autoeficacia: un análisis diferencial entre el rendimiento académico alto y bajo del alumnado de educación secundaria. *Reh-Revista Educação e Humanidades, 1*(1), 8-37. https://doi.org/10.17979/reipe.2015.0.01.460

Cerezo, R., Fernández, E., Amieiro, N., Valle, A., Rosário, P., & Núñez, J. C. (2019). Mediating role of self-efficacy and usefulness between self-regulated learning strategy knowledge and its use. *Revista de Psicodidáctica, 24*(1), 1-8. https://doi.org/10.1016/j.psicoe.2018.09.001

DiFrancesca, D., Nietfeld, J. L., & Cao, L. (2016). A comparison of high and low achieving students on self-regulated learning variables. *Learning and Individual Differences, 45*, 228-236. https://doi.org/10.1016/j.lindif.2015.11.010

Gaxiola, J., & González, S. (2019). Apoyo percibido, resiliencia, metas y aprendizaje autorregulado en bachilleres. *Revista electrónica de investigación educativa, 21*. https://doi.org/10.24320/redie.2019.21.e08.1983

Gasco, J. (2017). Diferencias en el uso de estrategias en el aprendizaje de las matemáticas en enseñanza secundaria según el sexo. *Cuadernos de Investigación Educativa, 8*(1), 47-59. https://doi.org/10.18861/cied.2017.8.1.2638

Hernández, P., & García, L. A. (1995). *Cuestionario de Estrategias de Control en el Estudio (ECE)*. Departamento de Psicología, Evolutiva y Psicobiología. Universidad de La Laguna.

Houston, D. M. (2016). Revisiting the relationship between attributional style and academic performance. *Journal of applied social psicología, 46*(3), 192-200. https://doi.org/10.1111/jasp.12356

Inglés, C. J., Martínez-Monteagudo, M. C., García-Fernández, J. M., Valle, A., & Castejón, J. L. (2015). Perfiles de orientaciones de metas y autoconcepto de estudiantes de Educación Secundaria. *Revista de Psicodidáctica, 20*(1), 99-116. https://doi.org/10.1387/RevPsicodidact.10023

Miñano Pérez, P., Castejón Costa, J. L., & Gilar Corbí, R. (2012). An explanatory model of academic achievement based on aptitudes, goal orientations, self-concept and learning strategies. *The Spanish journal of psychology, 15*(1), 48-60. https://doi.org/10.5209/rev_SJOP.2012.v15.n1.37283

Núñez, J. C., González-Pienda, J. A., González-Pumariega, S., García, M., & Roces, C. (1997). *Cuestionario para la evaluación de metas académicas en Secundaria (CEMA-II)*. Departamento de Psicología, Universidad de Oviedo.

Panadero, E., & Alonso-Tapia, J. (2014). ¿Cómo autorregulan nuestros alumnos? Modelo de Zimmerman sobre estrategias de aprendizaje. *Anales de Psicología/Annals of Psychology, 30*(2), 450-462. https://doi.org/10.6018/analesps.30.2.167221

Pekrun, R., Elliot, A. J., & Maier, M. A. (2009). Achievement goals and achievement emotions: Testing a model of their joint relations with academic performance. *Journal of educational Psychology, 101*(1), 115. https://doi.org/10.1037/a0013383

Pérez Villalobos, M. V., Díaz Mujica, A., González-Pienda, J. A., Núñez Pérez, J. C., & Rosário, P. (2009). Escala de metas de estudio para estudiantes universitarios. *Revista Interamericana de Psicología, 43*(3), 449- 455.

Pintrich, P. R., Schunk, D. H., & Luque, M. L. (2006). *Motivación en contextos educativos: teoría, investigación y aplicaciones*. Pearson educación.

Rodríguez, S., Piñeiro, I., Regueiro, B., Gayo, E., & Valle, A. (2014). Metas académicas, estrategias de aprendizaje y rendimiento académico en educación secundaria. *Magister, 26*(1), 1-9. https://doi.org/10.1016/S0212-6796(14)70012-X

Rosário, P., Núñez, J.C., González-Pienda, J.A., Valle, A., Trigo, L., & Guimarães, C. (2010). Enhancing self-regulation and approaches to learning in first-year college students: A narrative-based program asesad in the Iberian Peninsula. *European Journal of Psychology of Education, 25*, 411-428. https://doi.org/10.1007/s10212-010-0020-y

Rosário, P., Núñez, J. C., Valle, A.; González-Pienda, J. A., & Lourenço, A. (2013b). Grade level, study time, and grade retention and their effects on motivation, self-regulated learning strategies, and mathematics achievement: a structural equation model. *European Journal of Psychology of Education, 28*, 1311-1331. https://doi.org/10.1007/s10212-012-0167-9

Schelfhout, W., Dochy, F., Janssens, S., Struyven, K., Gielen, S., & Sierens, E. (2006). Educating for learning-focused teaching in teacher training: The need to link learning content with practice experiences within an inductive approach. *Teaching and Teacher Education, 22*(7), 874-897. https://doi.org/10.1016/j.tate.2006.04.003

Valle, A., Cabanach, R., Núñez, J., & González, J. (2006). Metas académicas, estrategias cognitivas y estrategias de autorregulación del estudio. *Psicothema, 18*(2), 165-170.

Valle, A., Regueiro, B., Núñez, J., Piñeiro, I., Rodríguez, S., & Rosário, P. (2018). Niveles de rendimiento académico e implicación en los deberes escolares en estudiantes españoles de Educación Secundaria. *European Journal of Education and Psychology 11*, 19-31. https://doi.org/10.30552/ejep.v11i1.183

Visbal, D., Mendoza, A., & Díaz, A. (2017). Estrategias de aprendizaje en la educación superior. *Sophia, 13* (2), 70-81. https://doi.org/10.18634/sophiaj.13v.2i.461

Weinstein, C., Schulte, A., & Palmer, D. (1987). *Learning and Study Strategies Inventory (LASSI).* Clearwater: H & H Publishing.

Zimmerman, B. J., & Moylan, A. R. (2009). Self-regulation: Where metacognition and motivation intersect. *In Handbook of metacognition in education* (pp. 311-328). Routledge.

Zimmerman, B. J. (2013). Theories of self-regulated learning and academic achievement: An overview and analysis. *Self-regulated learning and academic achievement*, 1-36. https://doi.org/10.4324/9781410601032

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LEARNING STYLE'S ROLE IN THE ACADEMIC PERFORMANCE OF INTERNATIONAL BUSINESS AND MANAGEMENT STUDENTS AT A UNIVERSITY INSTITUTION IN PERU

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Abstract. A quality university education, consistent with the standards of the educational system, supported by a flexible teaching management focused on learning and good academic results, strives to constantly update and innovate their classes with better strategies that motivate a significant development in their students. The model of learning styles of Honey - Alonso (1992), is consolidated in the university context as a validated instrument that recognizes the profile of each student to improve their experience, making it simpler and more satisfactory, allowing them to be better learners in different contexts. The purpose of this study is to identify the learning styles of students in the Administration and International Business program at La Salle University (2021) and to determine the possible correlation between learning styles and academic performance, gender and study cycle. The research has a quantitative nature of descriptive-correlational scope, the Honey - Alonso Questionnaire of Learning Styles (CHAEA) and the record of the grades of the previous cycle of the students of the selected professional career were used. The results indicate that the Theoretical style is the most preferred among university students in this career, and there is no relationship between learning style and sex or study cycle, and it can be affirmed that there is a relationship between learning styles and academic performance.

Key words: University education system, academic quality, learning style, academic performance, CHAEA.

FUNCIÓN DEL ESTILO DE APRENDIZAJE EN EL RENDIMIENTO ACADÉMICO DE LOS ESTUDIANTES DE ADMINISTRACIÓN Y NEGOCIOS INTERNACIONALES EN UNA INSTITUCIÓN UNIVERSITARIA EN PERÚ

Resumen. Una educación universitaria de calidad, coherente con las normas del sistema educativo, sustentado por una gestión docente flexible enfocada en el aprendizaje y buenos resultados académicos, se esmera en constantemente actualizar e innovar sus clases con mejores estrategias que motiven un desarrollo significativo en

sus estudiantes. El modelo de los estilos de aprendizaje de Honey - Alonso (1992), se consolida en el contexto universitario como un instrumento validado que reconoce el perfil de cada alumno para mejorar su experiencia, haciéndola más sencilla y satisfactoria, para lograr ser mejor aprendiz en diferentes contextos. El presente estudio tiene como objetivo identificar los estilos de aprendizaje en los estudiantes de la carrera de Administración y Negocios Internacionales de la Universidad La Salle (2021), y determinar la posible correlación entre los estilos con respecto del rendimiento académico, sexo y ciclo de estudio. La investigación es de naturaleza cuantitativa de alcance descriptivo – correlacional, se utilizó el Cuestionario Honey – Alonso de Estilos de Aprendizaje (CHAEA) y el registro de las notas del ciclo anterior de los estudiantes de la carrera profesional seleccionada. Los resultados indican que el estilo Teórico es el de mayor preferencia entre los alumnos universitarios de esta carrera, además no hay relación entre el estilo de aprendizaje con el sexo o el ciclo de estudio, y se puede afirmar que existe relación entre los estilos de aprendizaje con el rendimiento académico.

Palabras clave: Sistema educativo universitario, calidad académica, estilo de aprendizaje, rendimiento académico, CHAEA.

Introduction

The impact of the universities on the development of society is paramount. Moreover, they are not independent entities and are part of the Peruvian university system which, in turn, depends directly on the Ministry of Education and, consequently, on its policies, investment and management. Thus, after a disorderly massification of the Peruvian university offer, the very essence of the institution was distorted, bending the social and academic role of universities in a gradual state of commercialization, so that, in the search for improving university education, as the highest exponent of training, by 2014 the University Law No. 30220[1] was enacted and with it the National Superintendence of University Higher Education (SUNEDU[2]), including the notion of mandatory licensing of universities.

Cuenca (2015) states that: "A person trained in a poor-quality institution will only contribute to increasing professional underemployment rates or, worse, informality in the country" (p.12). In general, a university institution that appreciates to offer education under the basic conditions of quality[3] must put special interest in the learning level of its students, promoting the integral development of the student during his university life and not only in the profitability of the institution. It further states that: "Learning is increasingly based on the ability to search, access and apply knowledge in the solution of problems, based on the use of a complex set of skills" (Cuenca, p.72), since, in order for students to achieve their academic objectives in addition to university management, it is necessary that they themselves take an active role in their education.

On the other hand, Quiroz and Franco (2019) indicate that: "One way to measure the achievement of learning attained by students is through the analysis of academic performance, as an elemental factor to demonstrate quality in higher education" (p. 169). The result of knowledge is the reflection of the complex process of teaching in which various academic instruments are used, which are necessary so that, at the moment of evaluating the student, the acquired capacities can be verified; that is to say, that the evolutionary enrichment of the student

[1] Article 1. The purpose of this Law is to regulate the creation, operation, supervision and closing of universities. Promotes the continuous improvement of the educational quality of university institutions as fundamental entities of national development, research and culture.
Article 2. The present Law regulates universities under any modality, whether public or private, national or foreign, operating in the national territory (Ministry of Education (2014, July 3). University Law No. 30220.

[2] Responsible for licensing, which is understood as the procedure that aims to verify compliance with basic quality conditions" (SUNEDU, 2015, p.16).

[3] These are minimum standards that serve as general guidelines for the evaluation of the university's capacity to provide higher education services and authorize its operation (SUNEDU, 2015, p.8).

is reflected. Palomino (2018) defines academic performance as: "the fulfillment of the objectives, goals and achievements established for each area studied by the student" (p. 69); which is summarized in a quantitative grade on a scale of 0 to 20 and according to the national curriculum design. A student who achieves a score between 0 and 10 is called "failed" and a student who achieves a score between 11 and 20 is called "passed".

The purpose of the study is to establish the relationship between the learning styles of Honey - Alonso with the level of academic achievement in students of the Administration and International Business degree at La Salle University. In order to achieve the objective of the research, it is appropriate to delimit some aspects.

In formal higher education[4] learning is a process that is experienced in the classroom, basically moderated by a teacher; however, learning is born from personal experiences and each student finds a unique way of cultivating himself to grow academically, so it can be said that human beings throughout their lives usually experience learning in a particular way, even establishing patterns or habits with which the teacher must work. Yacarini and Gómez (2005) indicate:

> In different situations, styles vary according to age and levels of demand in the learning task. In university students these styles allow to identify and improve the personal styles of each one of them, to teach them with their predominant learning styles and to select educational methodologies according to the learning styles of the group (p. 97).

Regarding the training process, a university campus shares the following circumstances: first, the student understands better the lessons given by some teachers and consequently his learning process with those teachers is easier and with better academic results. Second, the teacher perceives that his methodology has a greater effect on a group of students who also tend to be more committed to their education and, in general, show an optimal academic performance, while another group has more time and effort to pass the course and even has the possibility of doing so without learning; all in front of the passive look of the teacher who, despite his expectations, is used to the circumstances and the results. In other words, a constant in university education is that not all people learn in the same way, and usually they are closer to a particular type of learning, so the recognition of the style that each student possesses would favor the timely use of methodologies and strategies more appropriate for university students.

Biggs (1987, cited in Ortiz et al., 2014), presents four conditions to generate quality learning in the university student: well-structured knowledge, motivational context, activity on the part of the student and interaction with others. These conditions allow for a satisfactory student-teacher relationship and, consequently, both can afford the same goal, meaningful learning for all students. Alonso, Gallego and Honey (2012) indicate:

> Genuine equality of educational opportunity for students does not mean that they have the same book, the same schedule, the same activities, the same tests ... The style of teaching by the teacher can mean unconscious favoritism for students with the same learning style, the same thinking systems and mental qualities (p. 44).

In the search to provide better educational opportunities and in an effort to build a better higher education, the new University Law[5] was approved, which maintains the following guiding principles: academic quality, continuous improvement of academic quality, critical spirit and research, and the best interest of the student, among others. Faced with the

[4] It is the education provided in approved educational establishments, in a regular sequence of school cycles, subject to progressive curricular guidelines and leading to degrees and diplomas (SINEACE, 2010, p. 29).

[5] University Law No. 30220

responsibility of training competent professionals who contribute to the needs of society, with a teaching management that must be constantly flexible due to changes in the university system that articulates it, the main interest of academic institutions should be to provide an innovative and quality education[6] , which requires a type of methodology that allows the incorporation of transformative practices that make the student the center of learning.

Ortega, Casanova, Paredes and Canquiz (2019), reflect on the importance of students themselves connecting with their learning style to face any academic challenge or difficulty. They say: "Systematizing this process can be a resource for the teacher to select individualized strategies to take advantage of each potential and overcome the difficulties of the training environment" (p. 714). And to identify the level of learning it is usual for the teacher to use academic performance as an indicator. Aranda (1998, as cited in Cuayla, 2017), indicates that academic performance: "is the result of school achievement in terms of different school objectives and there are those who homologate that academic performance can be defined as success or failure in the study, expressed through grades or grades" (p.24). Certainly, a student could not share the feeling of self-realization with the rest of his peers if he fails the course; however, the fact that he passes the course is not evidence that he has achieved significant learning of the subject.

In order to understand Honey-Alonso's model of learning styles, it is necessary to understand the theories that allowed it to evolve into the CHAEA, a validated instrument used in university education. The theory presented by Kolb (1984, cited in Kolb and Kolb, 2005) is a model aimed at the training of managers in the United Kingdom, a determining characteristic for understanding the model's approach. The initial concern was to know why is it that two people who share the same circumstances, one learns and the other does not. This is because people have different needs when learning, some of which are met and others are not. Kolb's proposal consists of four stages, and learning is considered to be contingent on the learner's experience. Kolb (2015, cited in Fuentes, 2019), details some of the activities that impact students:

- Concrete experience. Receives new information through the senses. Activities include: Simulation, observation, videos and problem sets.
- Reflective observation. Transforms experience through observation and reflection. Activities include: Processing questions, as well as brainstorming and discussions.
- Abstract conceptualization. Through thought, it produces new concepts and theories. Activities include: Analogies and model building.
- Active experimentation. Elaborates new information through experimentation.

Then, Honey and Mumford (1992), using Kolb's theory, give value to the fact that optimal learning is a circle that continuously feeds back to the learner's experience. Researchers then experiment with various approaches to obtain the Learning Style questionnaire. The research allowed them to find the reflective, theoretical, active and pragmatic styles; building the profile of the person with a model that provides a high level of detail in the characteristics of each of these styles. As part of the analysis of both models, Table 1 shows the similarities in the learning styles of Kolb, Honey and Mumford.

[6] Educational innovation is aimed at the implementation of processes, strategies, ideas, etc., in a planned and systematized manner, with the objective of introducing changes in current educational practices. Its purpose is, therefore, the transformation of the educational reality for its improvement, modifying attitudes or methodologies involved in the teaching and learning processes (Navarro, 2017, p. 24)

Table 1

Honey - Mumford and Kolb's Comparison of Learning Styles

Honey - Mumford	Kolb
Active: Living the experience	Concrete experience
Reflective: Reflection	Reflective observation
Theoretical: Generalization, hypothesis development	Abstract conceptualization
Pragmatic: Application	Active experimentation

Note. Adapted from Alonso, Gallego, Honey (2012).

Thus, a few years later Honey - Alonso experimented with different approaches to obtain the questionnaire of Learning Style (CHAEA), which allows evaluating individual differences and preferences of students and whose main objective is to reason about the needs of people at the time of learning.

Honey - Alonso (1992), who shared the same conviction about the learning process as Kolb and valuing the previous model of Honey and Mumford, consider that, although each of the learning styles (active, theoretical, reflective and pragmatic) are equally important, they are not always all considered by teachers and at the moment of planning their sessions they usually direct their efforts towards one of them, for example: theorizing; and, consequently, they prioritize theoretical learning. This natural selection is evidenced by the exercises presented in class, as well as by the type of evaluation used, which, if it becomes a routine, may discriminate against students whose preferred learning style is different. Table 2 below shows the details of the learning styles:

Table 2
Description and characteristics of Honey - Alonso's Learning Styles.

Style	Description	Features
Active	Open-minded, enthusiastic, they thrive on challenges, prefer groups and center all their activities around them.	Animator, improviser, discoverer, risk-taker, spontaneous.
Reflective	They are characterized by gathering data and analyzing them in detail, they are prudent. They are observant and listen to others.	Thoughtful, conscientious, responsive, analytical, thorough.
Theoretical	They analyze problems vertically and stepwise, they consider logical stages, they are perfectionists, they consider a depth in the thinking system.	Methodical, logical, critical, structured.
Pragmatic	They apply the content they have learned, discover the positive aspects of ideas, and act quickly when faced with projects that catch their attention. They are impatient with people who theorize.	Experimental, practical, direct, effective, realistic.

Note: Adapted from Alonso, Gallego and Honey (2012)

Maureira, Bahamondes, and Aravena (2015), analyze the relationship between learning styles and academic performance of students in the first semester of the Pedagogy career, using the CHAEA and their previous academic history. The study focuses on 151 students, of which 30 are female, and the general age range is from 17 to 32 years old. The results indicate that the four learning styles have similar scores in students. In addition, the Active style correlates with academic performance negatively, the Theoretical style positively, and neither the Reflective nor the Pragmatic style is related to academic performance.

Chambi, Manrique and Espinoza (2020), in a quantitative-correlational study, investigated learning styles and academic performance in a public university by applying descriptive statistics and correlation analysis techniques, as well as Honey and Alonso's CHAEA. The sample was constructed from 70 interns from the School of Nursing, 82.9% of whom were female and 84.5% were between 20 and 25 years of age. The observed results show that the predominant style is Reflective and the academic performance of the students in general was classified as good and excellent, although no relationship was found between the variables.

Escanero, Soledad and Guerra (2018), study on learning styles and academic performance, using the CHAEA and the Learning Styles Inventory in 146 medical school students, in addition to using the SPSS program for the corresponding analysis. The study is a descriptive correlational cross-sectional study, with a sample composed of 73% women. The main conclusions are that the predominant style is Reflective, and there is no evidence that learning styles affect students' academic performance.

Huamán, Olivares, Angulo, Macazana (2020), with a quantitative approach of non-experimental design and basic type, investigated academic performance and learning styles in university students of the School of Systems, using the CAMEA 40 instrument, which is based on the CHAEA but composed of 40 items instead of 80. The sample consists of 100 students. The main results show that the variables are significantly related to each other; the styles with the highest scores are Reflective and Pragmatic; and regarding the relationship between learning style and academic performance, it is identified that the relationship is the same in comparison

to the level of the style itself, that is, if the students have a high preference style, they also have a high performance.

Method

The methodology used in the research is quantitative with a descriptive-correlational scope, since a mathematical description has been made with the respective statistic, and the correlation of two variables has been studied. The study population is made up of 347 students enrolled in the School of Management and International Business at La Salle University, using stratified probability sampling. To obtain the sample, the population was divided into strata taking into account the level of academic progress of the student, in relation to the academic cycles and the number of students enrolled in each one. With 95% reliability and a 5% margin of error, the sample size is 183 students, as presented below:

Table 3
Sampling

Ranking	Cycle	Students	Percentage	Sample
Home	I - IV	146	42%	77
Intermediates	V - VII	91	26%	48
Advanced	VIII - IX	110	32%	58
TOTAL		347	100%	183

The inclusion criteria applied are:

- Cycle of study: from I to X.
- Academic status: enrolled in the study period 2021-I and II; who agree to participate freely in the CHAEA virtual survey.
- Sex: female and male.
- Age and study schedule: indifferent.

The sample has a participation of 59.6% women and 40.4% men. To analyze participation by age, students were grouped into: under 20 years of age (30.6%), 20 to 22 years of age (32.8%), 23 to 25 years of age (30.6%), and 26 years of age and older (6%). Four categories of academic performance were considered, which are presented in Table 4:

Table 4

Grading scales for learning in university education

Ranking	Scale	Description
Featured	20 - 18	When the student evidences the achievement of the expected learning, even demonstrating a solvent and very satisfactory management in all the proposed tasks.
Scheduled	17 - 14	When the student evidences the achievement of the expected learning in the programmed time.
In process	13 - 11	When the student is on the way to achieve the anticipated learning, for which he/she requires accompaniment during a reasonable time to achieve it.
At startup	10 - 00	When the student is beginning to develop the expected learning or evidences difficulties for the development of these and needs more time of accompaniment and intervention from the teacher according to his/her pace and learning style.

Note. Adapted from Digital Resources Education Platform (2019).

Two variables were analyzed, the first is learning styles (independent variable), the data were collected using the Honey - Alonso CHAEA; which is a self-administered questionnaire of dichotomous scoring that randomly distributes the items by style forming a single set. The maximum score that can be obtained is 20 points for each style and the interpretation scales proposed by Alonso, Gallego and Honey provide the criteria obtained by style, see table 5. The second variable is academic performance (dependent variable) which is expressed in grades, on a scale of 0 to 20, obtained by the students in the 2021-I academic cycle. The data were entered into an Excel database and transferred to the SPSS 26 program to obtain descriptive statistics.

Table 5

General scale. Preference in Learning Styles

Styles	Very low	Download	Moderate	High	Very High
Active	0 - 6	7 - 8	9 - 12	13 - 14	15 - 20
Reflective	0 - 10	11 - 13	14 - 17	18 - 19	20
Theoretical	0 - 6	7 - 9	10 - 13	14 - 15	16 - 20
Pragmatic	0 - 8	9 - 10	11 - 13	14 - 15	16 - 20

Note. Alonso et al. (2012, p. 114).

In order to respond to the hypotheses posed between the variables of academic performance and learning styles, descriptive statistics such as measures of central tendency were generated, in addition to normality, variance, Kruskal-Wallis and Chi-square tests. The ethical aspect has been considered in each of the stages of the study, from communication with the academic institution, the autonomy and acceptance of the participants in the survey, as well as the reliability and veracity of the information provided. Also, approval was obtained from the university's Ethics Committee.

Results

In accordance with the research objectives, the main results are presented below.

Table 6

Academic performance by preferred learning style of the students of the Administration and Neg. ULASALLE International

Academic performance	Total		Active		Reflective		Theoretical		Pragmatic	
	Number of students	Share (%)	Number of students	Share (%)	Number of students	Share (%)	Number of students	Share (%)	Number of students	Share (%)
Total	183	100.0	43	23.5	18	9.8	72	39.3	50	27.3
Featured	17	100.0	3	17.6	-	-	8	47.1	6	35.3
Scheduled	153	100.0	36	23.5	16	10.5	60	39.2	41	26.8
In process	13	100.0	4	30.8	2	15.4	4	30.8	3	23.1

Note. There have been no cases of students who are at the beginning stage in their academic performance.

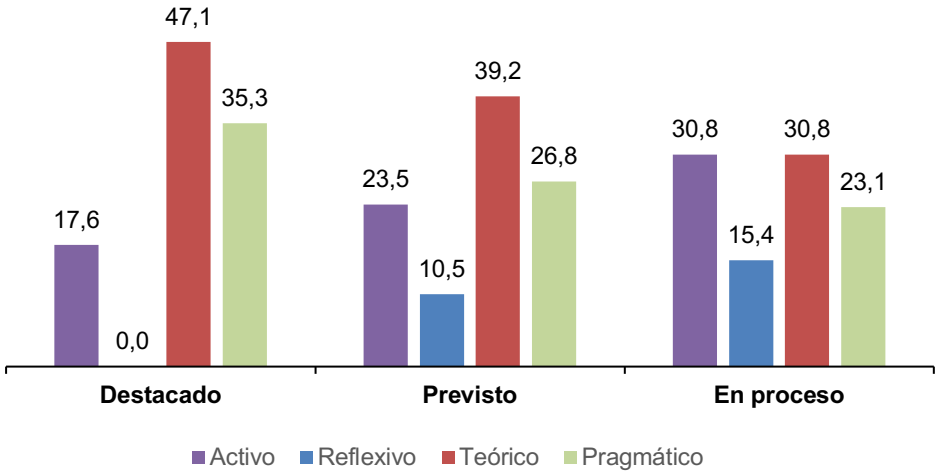
Table 6 relates the learning styles to the classification for academic performance, that is, to the learning style preferred by the student in relation to the grade obtained in the cycle prior to taking the CHAEA.

Note 1 states that academic performance has not been considered in the Home classification, which ranges from 0 to 10, due to lack of data.

It is observed that, out of the total 183 students, the majority have a rating that is in the Predicted category, and furthermore, it is the Theoretical learning style that has the highest preference. Figure 1 below presents the information graphically.

Figure 1

Preferred learning style by academic performance of the students of the Administration and Neg. ULASALLE International

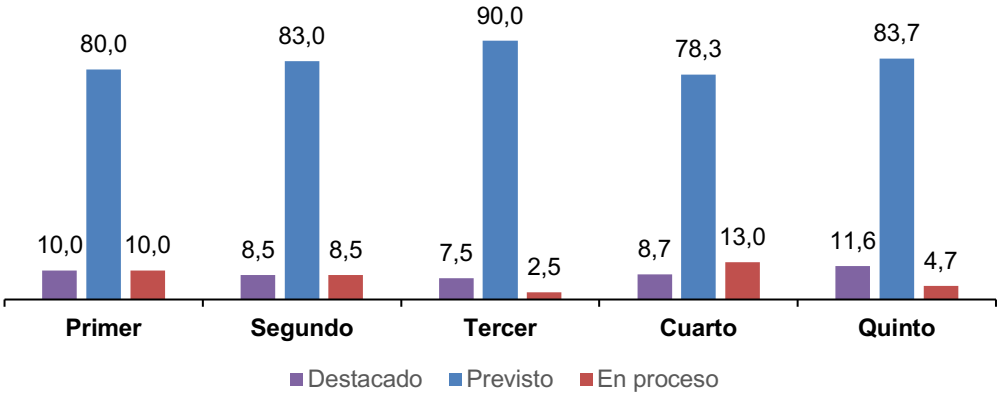


With the information obtained, it can be affirmed that there is a direct relationship between the variables, and for the Reflective learning style no data was obtained for students with performance classified as Outstanding. In addition, Alonso et al. (2012) proposes some questions often asked by Theorists, such as: will I have the opportunity to ask several questions, is there a clear structure and objectives between the objectives and activities of the program, will the concepts I will be given improve my knowledge, among others. These proposed questions support the teacher in preparing his or her study session in relation to the needs of his or her students.

Then, to deepen the analysis of the Academic Performance in the International Business and Management career, the percentage participation of students in relation to the year of study and the level of academic performance is correlated, as can be seen in Figure 2.

Figure 2

Academic performance by year of the students of the Administration and Neg. ULASALLE International



Each academic year is equivalent to two study cycles, and in all of them it is identified that the students' performance is in the Predicted category, and in the first two years the percentage participation between the student whose progress is between In Process and Outstanding, keeps the same portion. The next category with the highest proportion of academic performance is Outstanding. Below is more detail on the intensity of preference in each of the learning styles, according to the level of studies attained.

Figure 3

Intensity of preference of the Active learning style of the students of the Administration and Neg. ULASALLE International students, according to level reached

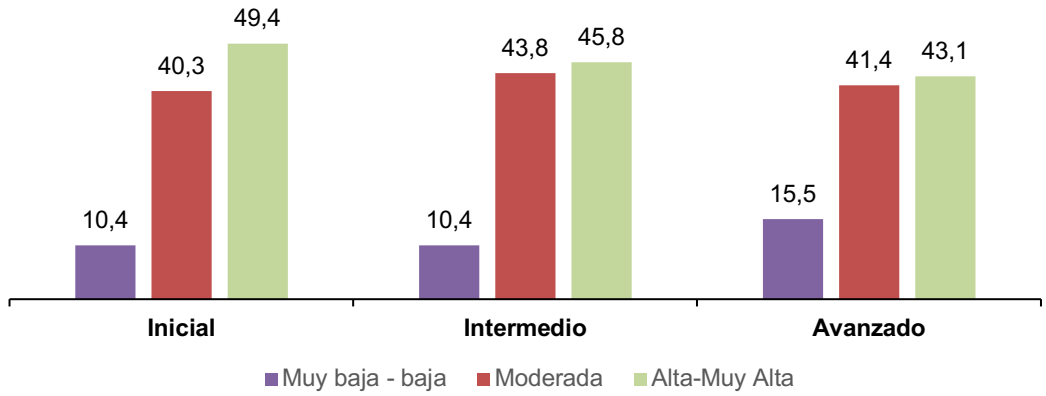
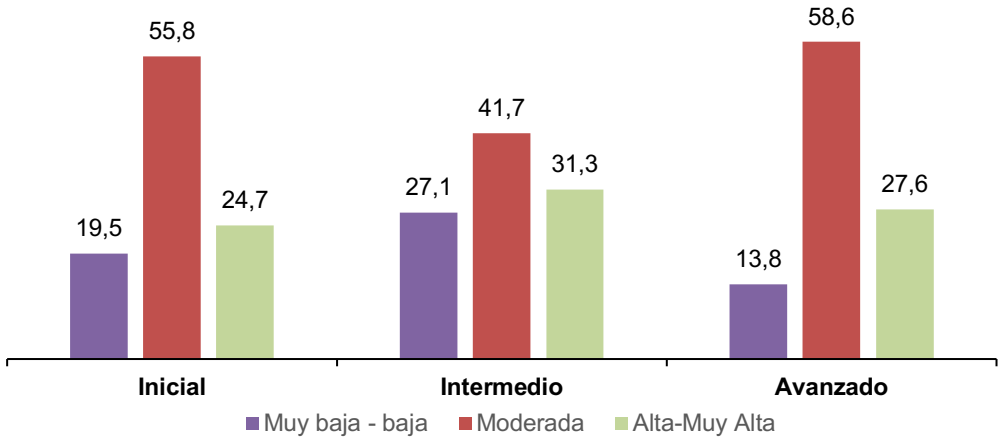


Figure 3 illustrates the information relating the level of studies achieved, whether initial, intermediate or advanced, in relation to the intensity of learning style preference, which can be very low - low, moderate and high - very high. In the case of the Active learning style, it can be seen that the intensity in each of the levels reached is in the highest proportion between high - very high, followed by moderate.

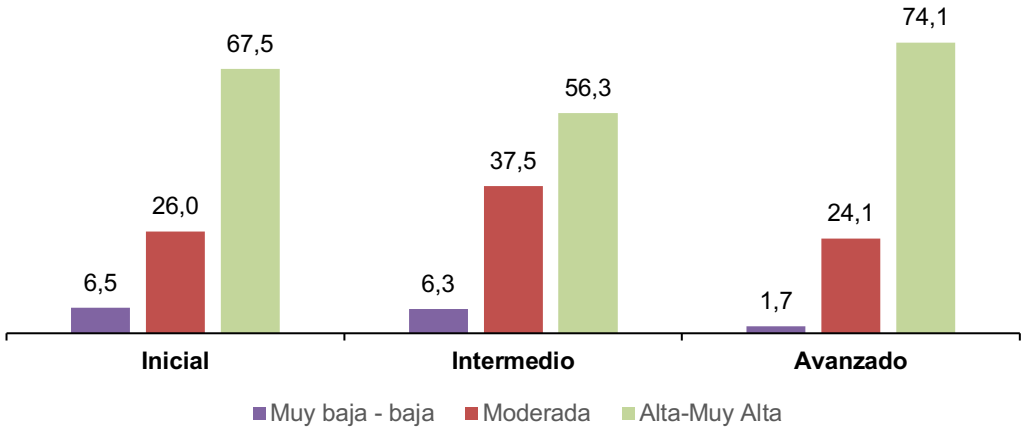
Figure 4

Intensity of preference of the Reflective learning style of the students of the Administration and Neg. ULASALLE International students, according to level reached



In Figure 4 it can be identified that the intensity in the preference of the Reflective learning style in each of the study levels is moderate, and in terms of very low-low advancement it has a considerable percentage participation in each of the cycles, in comparison with the rest of the styles.

Figure 5
Intensity of preference of the Theoretical learning style of the students of the Administration and Neg. ULASALLE International students, according to level reached



In the case of the Theoretical learning style, Figure 5 shows that the intensity in each of the levels reached is in the highest proportion in high - very high, followed by moderate intensity.

Figure 6
Intensity of preference of the Pragmatic learning style of the students of the Administration and Neg. ULASALLE International students, according to level reached

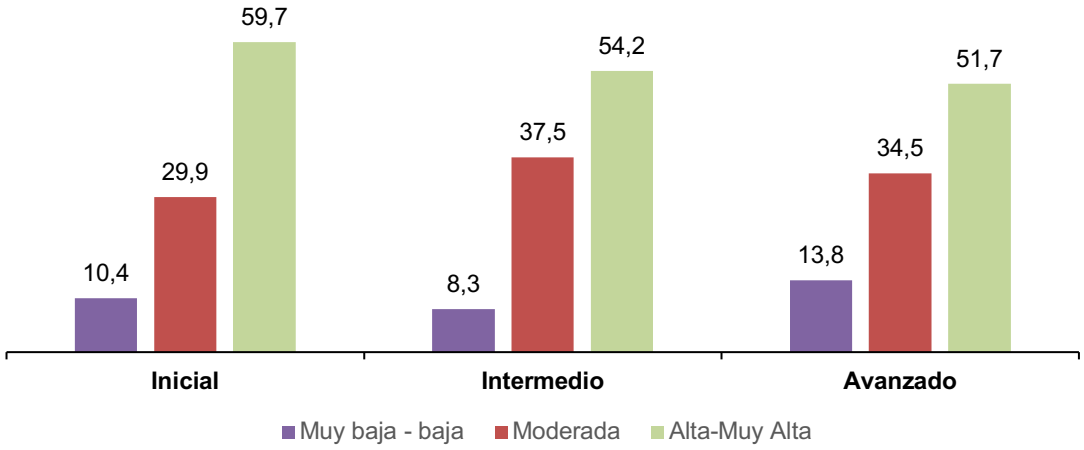


Figure 6 shows that the intensity of preference for the Pragmatic learning style at all levels of study achieved is high - very high, followed by moderate intensity. As can be seen, only the Reflective style shows a moderate level of intensity and then high - very high, the opposite of the other three cases.

The following table presents the assessment of the learning styles of the Honey - Alonso model in relation to the number of students and percentage participation by preferred learning style.

Table 7
Preferred learning style of the students of the Administration and Neg. ULASALLE International

Style of learning	Number of Students	Participation percentage (%)
Total	183	100.0
Active	43	23.5
Reflective	18	9.8
Theoretical	72	39.3
Pragmatic	50	27.3

As can be seen in Table 7, the learning style with the highest value or preference is the Theoretical style with 39.3% of participation, then with a participation of 27.3% the students prefer the Pragmatic style, in third place is the Active style with 23.5% and, with a lower participation is the Reflective style with 9.8%. Figure 7 below shows the percentage of students and intensity of preference, according to learning style.

Figure 7
Preference of the Active learning style of the students of the Administration and Neg. ULASALLE International

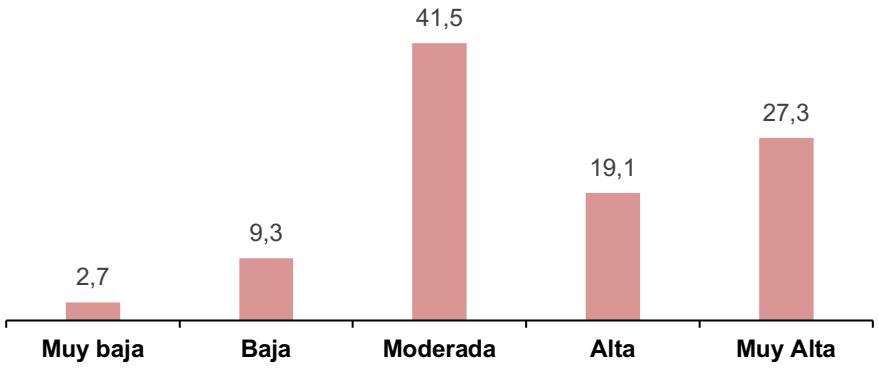


Figure 7 identifies that the preference for the Active learning style is mostly moderate, which according to the model means that this level of preference allows the student to have more opportunity to adapt to other learning styles and therefore assimilate different types of information. For students who have a very high or high preference Alonso et al. (2012) proposes some activities with which they will learn better, such as: active intervention, problem solving and competition in teams, among others.

Figure 8
Preference of the Reflective learning style of the students of the Administration and Neg. ULASALLE International

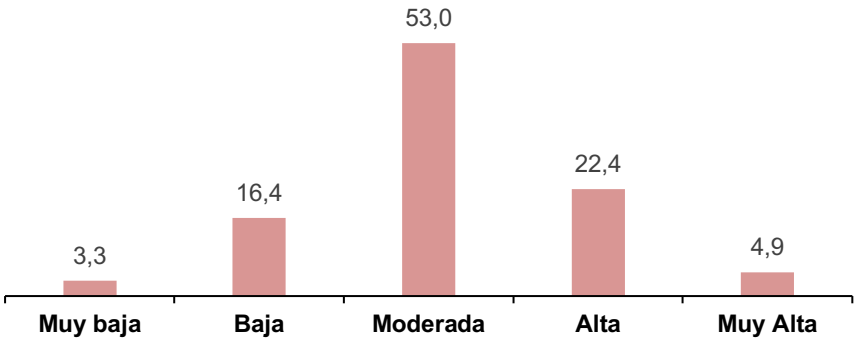


Figure 8 demonstrates that the preference that students have for the Reflective learning style has a greater moderate tendency. For students who have a high or very high preference to this style Alonso et al. (2012) proposes activities such as: observing and listening, detailed analysis, among others.

Figure 9
Preference of the Theoretical learning style of the students of the Administration and Neg. ULASALLE International

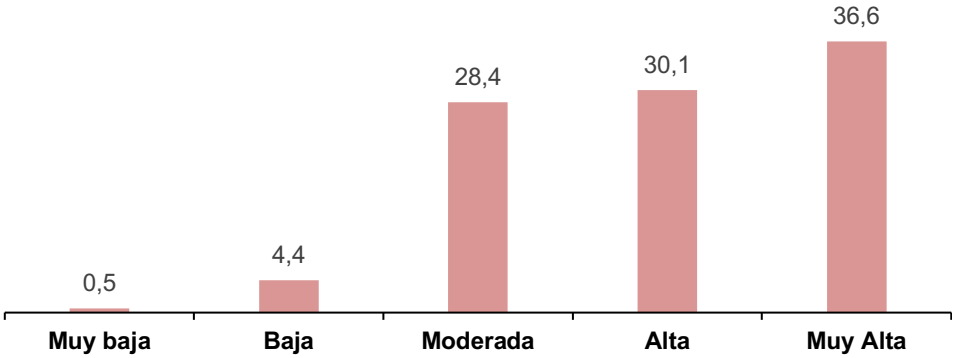
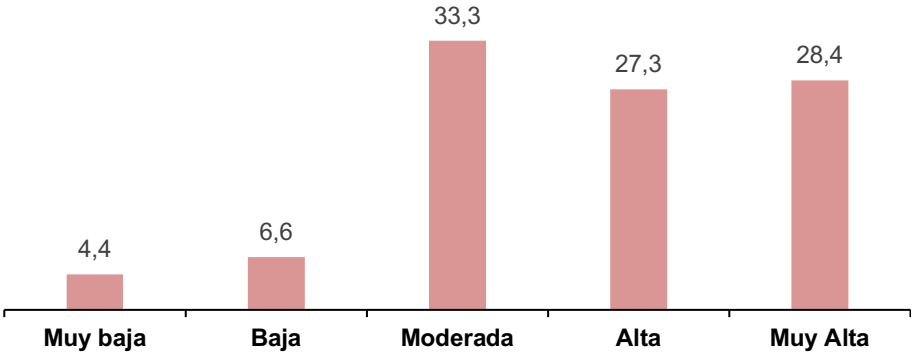


Figure 9 shows that the preference that students have for the Theoretical learning style reflects a very high and high trend. Alonso et al. (2012) proposes that these students learn better when they: encounter new concepts, have the possibility to question and explore methodically, among others.

Figure 10

Preference of the Pragmatic learning style of the students of the Administration and Neg. ULASALLE International



The previous graph shows the level of preference that students have for the Pragmatic learning style is mostly moderate, however, the high and very high preference also has an important percentage participation, so using the proposal of Alonso et al. (2012), some actions are identified that allow them to learn better, such as: acquiring techniques and putting them into practice quickly, developing action plans, reviewing videos and films, among others. For further analysis on the assessment of learning styles, Table 8 presents the average trend of the styles.

Table 8

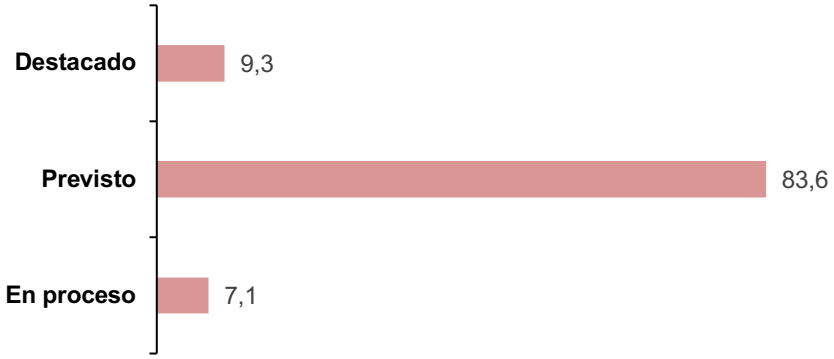
Average trend of the learning styles of the students in the career of Administration and Neg. ULASALLE International

Style of learning	Number of students	Average score	Preference
Active	183	12.4	Moderate
Reflective	183	15.8	Moderate
Theoretical	183	14.4	High
Pragmatic	183	13.9	High

The score with the lowest academic performance, as shown in the previous table, is the Active learning style, which enjoys a moderate preference, and the learning style with the highest score corresponds to the Reflective, also with a moderate preference. To analyze the students' average score in more detail, the assessment of academic performance is analyzed below:

Figure 11

Percentage of students in the Administration and Neg. ULASALLE Internationals, by performance



Of the four categories on the rating scale, a lower percentage is found in the In Process category, which reflects the effort of both the teacher and the student to meet the academic objectives of the first cycle of the 2021 period.

Then, to examine the degree of correspondence between learning style and gender of students in the International Business and Management major, the relationship between learning styles, academic performance and gender is presented.

Figure 12

Average grade point average of the students of the Administration and Neg. ULASALLE International Students, by learning style, according to gender

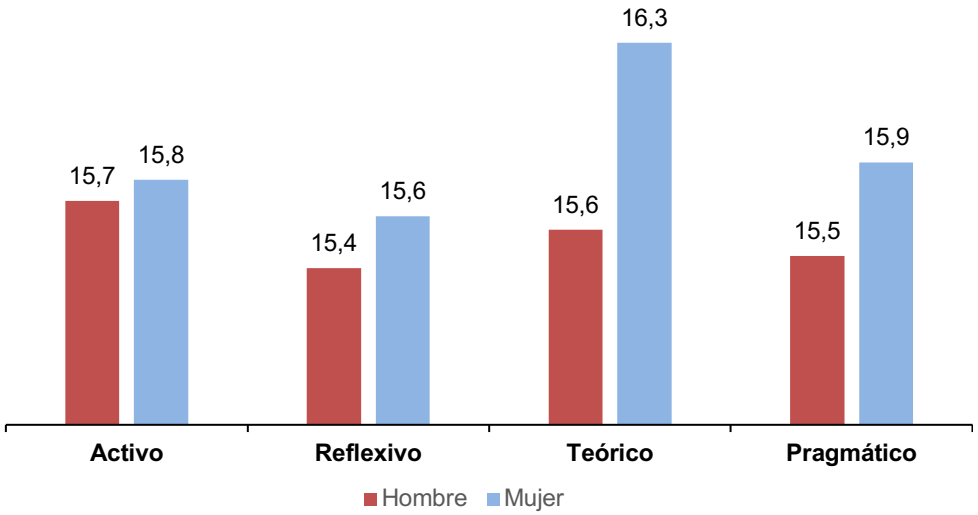


Figure 12 shows that the average grade of male students is slightly lower than that of female students, 15.6 and 15.9, respectively. Both averages are classified as Predicted, which means that students in general show learning achievements as expected by their teacher. To extend the analysis of both variables, the preference of each learning style, according to the student's gender, is presented below.

Figure 13

Preference of the Active learning style of the students of the Administration and Neg. ULASALLE Internationals, by gender

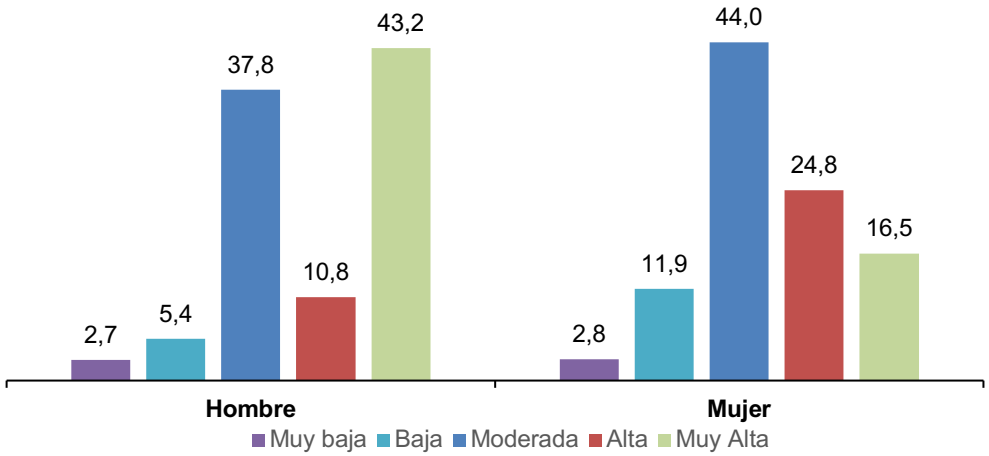


Figure 14
Preference of the Reflective learning style of the students of the Administration and Neg. ULASALLE International students, by gender

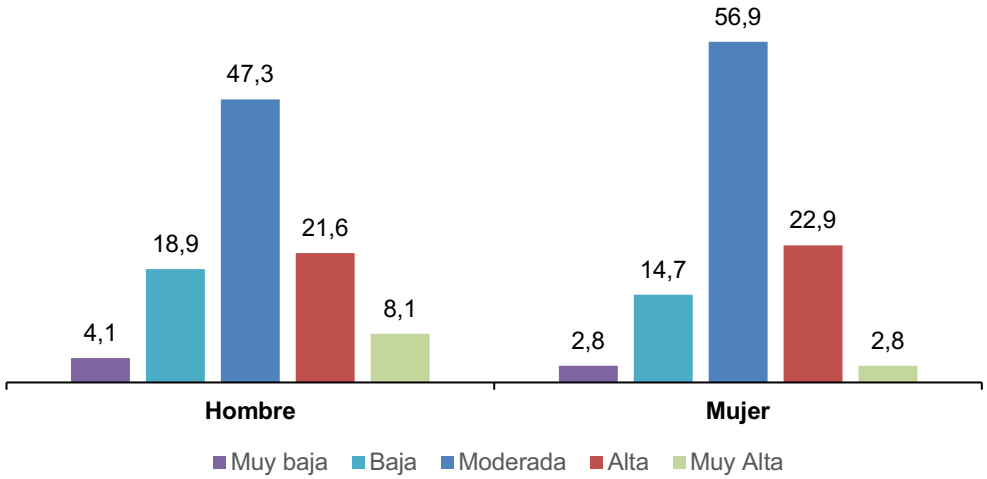


Figure 15
Preference of the Theoretical learning style of the students of the Administration and Neg. ULASALLE Internationals, by gender

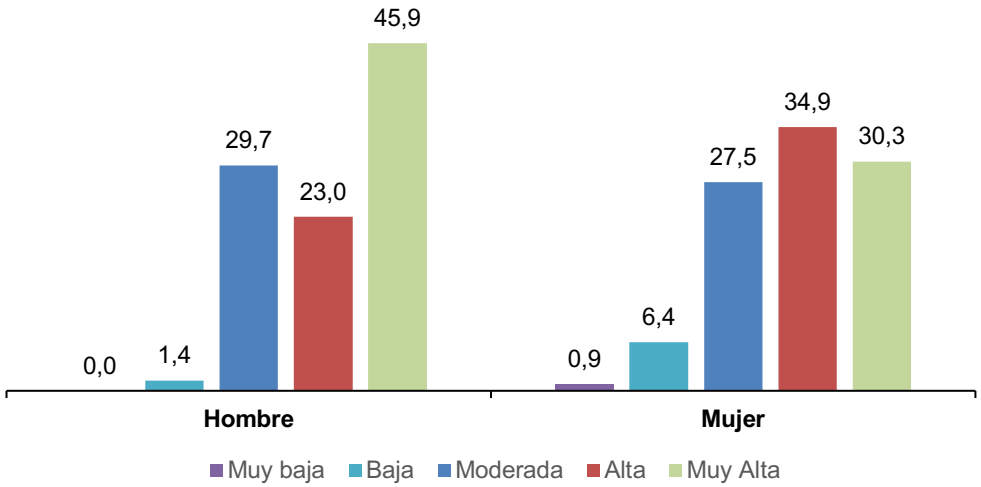
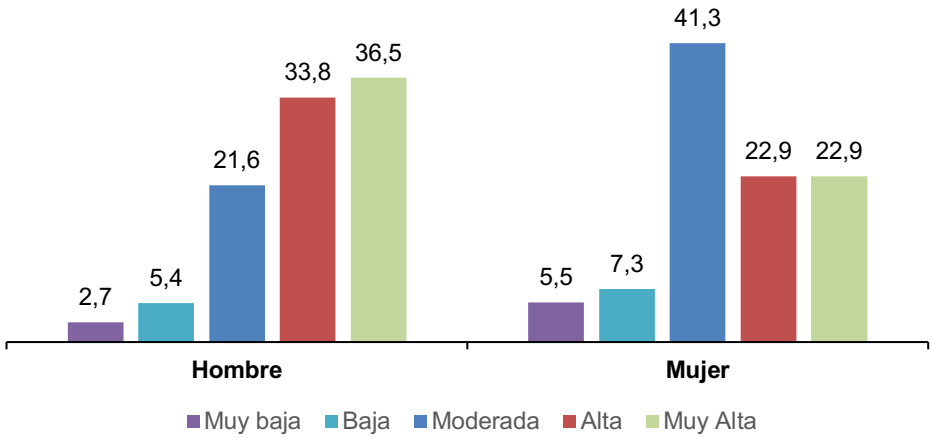


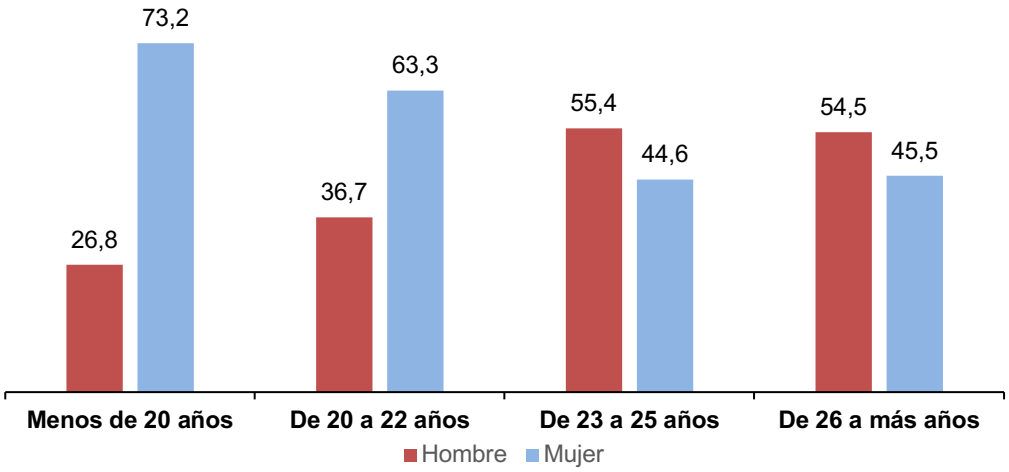
Figure 16
Preference of the Pragmatic learning style of the students of Administration and Management degree. ULASALLE Internationals, by gender



With the previous information, it can be seen that the preference for each of the styles is not related to the sex of the students. However, most of the time the preference for women is moderate and in the case of men it is high.

In addition, the gender variable is related to the percentage participation of students in each of the categories in the age variable, as shown below:

Figure 17
Percentage of students in the Administration and Neg. ULASALLE International Students, by Sex, according to age range



The previous detail shows that the percentage participation of male students increases as their age increases, while the opposite happens in the case of female students, who have a higher percentage participation in the first two categories (under 20 years old and 20 to 22 years old), and in the last two categories (23 to 25 years old and 26 years old and older) it practically remains the same.

In addition, this research also aims to examine the degree of correspondence between the study cycle and the preponderant learning style among students of International Business and Management.

Figure 18

Average score of the students of the Administration and Business Administration program. ULASALLE International Students by level achieved, according to learning style

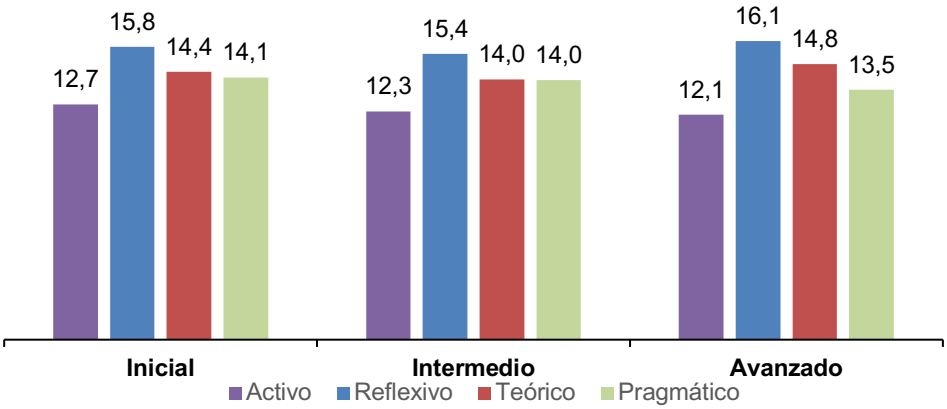


Table 10

Average score of the students of the Administration and Business Administration program. International

of ULASALLE by learning style, by year of study

Year of study	Active		Reflective		Theoretical		Pragmatic	
	# of students	Average score	# of students	Average score	# of students	Average score	# of students	Average score
Total	183	12.4	183	15.8	183	14.4	183	13.9
First	30	13.2	30	16.3	30	14.4	30	14.4
Second	47	12.3	47	15.4	47	14.5	47	14.0
Third	40	12.3	40	15.4	40	13.8	40	13.9
Fourth	23	11.8	23	16.2	23	14.9	23	13.4
Fifth	43	12.3	43	15.9	43	14.9	43	13.7

Table 10 groups the study cycles, and since the International Business and Management degree program contains 10 cycles, 5 years are presented, each with the number of students who have a preference in relation to a learning style and the average score obtained in the previous cycle.

Discussion and conclusions

In order to know the learning styles of university students, the research shows the preference of the style and the one most frequently used by the students, which also allows knowing how they experience their learning process and with this it will be possible for the teachers to direct the activities and methodology in general, to accompany them all towards their significant learning. The results are presented below in relation to the hypotheses proposed and the pertinent discussion of these results:

The preferred style for ULASALLE students is Theoretical, and this result differs with respect to the predominance of the learning style in the rest of the researches that present this analysis and expose the Reflective style as the preferred one in their students; these results are explained from the very essence of the schools analyzed, which were Nursing, Medicine and System. About the student's profile, the present sample has a participation of 59.6% of women, which allows us to know the level of interest shown by women regarding their learning style; this fact coincides with the researches that have also exposed the profile of their sample as the case of the Nursing school that presented 82.9% of the female sample, the same happens with the Medical school that has 73% of women; however for Maurera et al. (2015), whose research was conducted for the Pedagogy school a majority is represented by male students.

In addition, it is stated that there is a relationship between the learning styles of the model proposed by Honey - Alonso with the academic performance of university students (Significance 0.198>0.05), this manifestation is related to the results of Huamán et al. (2020) and Maureira et al. (2015), although this is not the case with the rest of the research. Likewise, having expanded the analysis on the intensity of learning style preference and knowing the limitations of having a high preference for any one type, it is concluded that the teacher should promote the use of all styles as part of a balanced methodology so that students achieve significant learning by making use of all of them.

On the correlation between the preferred learning style with the student's sex, the results show that there is no relationship between the variables (Asymptotic significance (bilateral), 0.419>0.05), results that coincide with the rest of the research. In addition, it is the Predicted academic performance that prevails. Chambi, Manrique and Espinoza (2020) also obtained positive academic results. As to whether there is any degree of correspondence between the study cycle and the preferred learning style, the results indicate that the variables are not related to each other (asymptotic significance (bilateral), 0.667>0.05).

The main limitation of the study is that the application of the survey was virtual, so approaching the student and motivating him/her to fill out an 80-question survey required more time than expected. On the other hand, with the future objective of expanding the research, it is possible to use the CHAEA tool in the other two careers of La Salle University, to see if there is any relationship between the preferred learning style of the students in Business (Administration and Business Administration) and the preferred learning style of the students in Business (Administration and Management). International), Social (Law) and Engineering (Software Engineering).

In general, given that learning styles are constructs that have an impact on the way people learn, it is convenient for all university institutions to consider this tool in the different moments of the didactic model they use, from session planning to student assessment. Finally, it is concluded that in order for university teachers to be able to use the CHAEA questionnaire, it is necessary that they first receive training from their academic institution regarding the model, its use and benefits. The impact can be measured based on the training of the entire teaching staff and the generation of strategies based on the use of the tool by the teaching staff and students.

References

Alonso, C., Gallego, D., & Honey, P. (2012). *Los estilos de aprendizaje: Procedimientos de diagnóstico y mejora*. Mensajero.

Cuayla, Y. (2017). *Hábitos de estudio y rendimiento académico en matemática de los estudiantes de Ingeniería comercial de la Universidad José Carlos Mariátegui, Moquegua 2017.* [Tesis de maestría]. Lima

Cuenca, R. (Ed.) (2015). *La educación universitaria en el Perú. Democracia, expansión y desigualdades*. Instituto de Estudios Peruanos.

Chambi, A., Manrique, J., & Espinoza, T. (2020). Estilos de aprendizaje y rendimiento académico en internos de enfermería de una universidad pública peruana. *Facultad de Medicina Humana URP*, 20(1), 43-50.

Escanero, J., Soledad, M., & Guerra, M. (2018). Estilos de aprendizaje y rendimiento académico: diferentes herramientas, diferentes resultados. *FEM*, 21(4), 173-180.

Fuentes, D. (2019). Aportes del aprendizaje experiencial a la formación de estudiantes de enfermería en psiquiatría: Estudio cualitativo. *RMIE*, 24 (82), 833-851

Honey, P. & Mumford, A. (1992). *Setting the scene for Learning Styles. In The manual of Learning Styles.* Berkshire: Peter Honey

Huamán, Z., Olivares, P., Angulo, C., & Macazana, D. (2020). Rendimiento académico y estilos de aprendizaje en Estadística I. Casi de estudio escuela de Sistemas de la Universidad Nacional Mayor de San Marcos. *Conrado, 17* (79), 310-317.

Kolb, A. & Kolb, D. (2005). Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education. *Academy of Management Learning & Education*, *4*(2), 193-212.

Maureira, F., Bahamondes, A., & Aravena, C. (2015). Relación entre los estilos de aprendizaje y el rendimiento académico de estudiantes de educación física de la USEK de Chile. *Revista Ciencias de la Actividad Física*, 16 (2), 29-36.

Ministerio de Educación (2014, 3 de julio). Ley Universitaria N.º 30220. http://www.minedu.gob.pe/reforma-universitaria/pdf/ley_universitaria.pdf.

Navarro, E., Jiménez, E., Rappoport, S., & Thoilliez, B. (2017). *Fundamentos de la investigación y la innovación educativa.* UNIR.

Ortiz, L., Moromi, H., Quintana, C., Barra, M., Bustos, J., Cáceres, L., Chein, S., & Rodríguez, C. (2014). Estrategias, estilos de aprendizaje y rendimiento académico en estudiantes ingresantes de Odontología. *Odontol. Sanmarquina*, *17*(2), 76-81.

Ortega, E., Casanova, I., Paredes, Í., & Canquiz, L. (2019). Estilos de aprendizaje: Estrategias de enseñanza en Luz. *Telos. Revista de Estudios Interdisciplinarios en Ciencias Sociales*, 21(3), 710-730.

Palomino, E. (2018*). Estrategia de aprendizaje en el área de ciencia tecnología y ambiente para la mejora del rendimiento académico escolar*. http://igob.edu.pe/ojs/index.php/IGOB/article/view/30

Plataforma Educativa de Recursos Digitales (2019). *Escala de Calificación de los Aprendizajes en Educación Básica*. Ministerio de Educación del Perú. https://carpetapedagogica.com/escaladecalificaciondelosaprendizajes

Quiroz, C. & Franco, D. (2019). Relación entre la formación docente y el rendimiento académico de los estudiantes universitarios. *Educación XXVIII, 55,* 166-181. https://doi.org/10.18800/educacion.201902.008

Sistema Nacional de Evaluación, Acreditación y Certificación de la Calidad Educativa - SINEACE (2010). *Propuesta del glosario de términos básicos de evaluación, acreditación, y certificación del SINEACE.* https://acreditacion.unsm.edu.pe/lib/docs/documentos_sineace_coneau/574_GLOSARIO%20del%20SINEACE%20-OCT%202010-%5b1%5d.pdf

Superintendencia Nacional de Educación Superior Universitaria - SUNEDU (2015). *El Modelo de Licenciamiento y su Implementación en el Sistema Universitario Peruano*. http://repositorio.minedu.gob.pe/bitstream/handle/20.500.12799/4565/El%20Modelo%20de%20Licenciamiento%20y%20su%20Implementaci%c3%b3n%20en%20el%20Sistema%20Universitario%20Peruano.pdf?sequence=3&isAllowed=y

Yacarini, A. & Gómez, J. (2005*).* Estilos de aprendizaje y rendimiento académico en estudiantes de la Universidad Católica Santo Toribio de Mogrovejo. *UMBRAL. Revista de Educación, Cultura y Sociedad FACHSE (UNPRG)*, *8*, 92-112.

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THE DEVELOPMENT OF ENGLISH-SPEAKING SKILLS THROUGH THE PEDAGOGY OF LARGE GROUPS AND THE IMPLEMENTATION OF ICT TOOLS

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Abstract. The present study collects the data from the research carried out in the Department of Foreign Languages of the National Autonomous University of Honduras from the "Representations of the teachers of English I on the development of oral production" This research aimed to strengthen the competencies of university teachers to innovate in their daily teaching practice. The study focused on teaching oral production in large groups using ICT-mediated tools. The educational intervention implements in four English I section with 50 students per section. The findings show the practice of interaction and oral production from anywhere and anytime, more oral skills practice out of class, development of an authentic language in a real context. The most relevant results have been the achievement of strategies for the development of Oral skills and interaction in the pedagogy of large groups. It also made it possible to carry out an educational innovation that demonstrated that Oral skills can be developed in numerous classes achieving the didactic objectives. The results show that oral skills can be worked both inside and outside the classroom with the guided and didactic use of technological tools for language teaching.

Key words: Oral production, large group pedagogy, hybrid classrooms, ICT tools

EL DESARROLLO DE LA PRODUCCIÓN ORAL A TRAVÉS DE LA PEDAGOGÍA DE GRANDES GRUPOS Y LA IMPLEMENTACIÓN DE HERRAMIENTAS TIC

Resumen. El presente estudio recoge los datos de la investigación que se llevó a cabo en el Departamento de Lenguas Extranjeras de la Universidad Nacional Autónoma de Honduras, a partir de las "Representaciones de los profesores de Inglés I sobre el desarrollo de la producción oral". Esta investigación tuvo como objetivo fortalecer las competencias del profesorado universitario para innovar en su práctica docente cotidiana. El estudio fue enfocado en la enseñanza de la producción oral en grupos grandes y el uso de herramientas mediadas por las TIC. Se aplicó la metodología de investigación-acción. La intervención educativa se llevó a cabo con cuatro secciones de inglés I con un número de 50 estudiantes

por cada sección. Los hallazgos muestran práctica de interacción y producción oral desde cualquier lugar y momento, mayor cantidad de práctica oral fuera de clase, desarrollo de un lenguaje auténtico en un contexto real. Los resultados más relevantes han sido la implementación de estrategias para el desarrollo de la habilidad oral y la interacción en la pedagogía de grandes grupos. Asimismo, permitió llevar a cabo una innovación educativa en la que se demostró que la producción oral se puede desarrollar en clases numerosas logrando los objetivos didácticos. Se evidenció que no solo se pueden trabajar la producción oral dentro del aula de clases sino también fuera de la misma con el uso guiado y didáctico de herramientas tecnológicas para la enseñanza de idiomas.

Palabras clave: Producción oral, pedagogía de grandes grupos, clase hibrida, herramientas TIC

Introduction

Currently, the National Autonomous University of Honduras implements the use of technology to innovate its teaching practices through the Directorate of Educational Innovation and the Executive Directorate of Technology Management, in accordance with the technological programs and competencies set forth in its Educational Model of the IV Reform. Despite significant advances in technology and educational innovation, English teachers in the Department of Foreign Languages still experience limitations that prevent their didactic practice from reaching the development of language skills in their students, especially those concerning oral production.

The teachers of the Language Department of the UNAH are faced each period with overcrowded classes where the development of oral production becomes a challenge for teachers in the area of foreign language teaching. This problem of large language classes is common at UNAH, reaching a number of 50 or more students. Given this situation, the question arises: How can the language teacher involve each of the students to develop oral production in the classroom in a period of time of fifty minutes a day and in a reduced space that prevents mobilization? These factors drastically diminish the achievement of linguistic objectives. The above is even more marked in traditional classroom teaching where oral production has been one of the most neglected competencies in language classes (Cassany, Luna & Sanz, 1994); that is, when teaching grammatical and metalinguistic postulates regarding reading and writing, teachers focus on being able to comply with the contents assigned for the academic period in these areas, and do not always have the time to evaluate oral production individually and offer detailed feedback.

In order to seek new alternatives that allow the development of oral production, a project was conducted with two English I class with about 100 students during the third academic period 2019 at UNAH. This project was carried out in hybrid mode with the implementation of technological tools, specifically Audacity, Vocaroo, Present.me, Thinglink, Youtube, Padlet, WhatsApp, SoundCloud, Zoom integrated into a MOODLE platform on the site tareavirtual.com, through the use of mobile devices. This virtual environment provided the student with the opportunity to develop, in addition to the other language skills (reading, writing and oral comprehension), oral production and interaction. This work by the student was done outside the time and space used in the classroom through the Moodle platform installed in the domain tareavirtual.com. The use of ICTs spontaneously incorporated into the daily lives of students, as in the case of communication through social networks, information search, and installation of applications on their mobile devices, facilitated the implementation of this pedagogical innovation in language teaching with web tools that develop oral production.

Large group pedagogy

the notion of "large group" pedagogy can be named in different ways: "large groups", "overloaded classes", "overcrowded classes", "large classes", "numerous classes". These designations mark the difficulties associated with teaching them in overcrowded classrooms.

Some authors, when referring to "large groups" in teaching, express that we speak of a large group when, in a given teaching/learning situation, the number of students can become an obstacle to communication, DAH (2002). According to Anzieu and Martin (1997), a large teaching group has between 25 and 50 people. However, for Dioum (1995) a large group is from 45 to 50 students per class. On the other hand, for Peretti (1987) the notion of a large group is so complex that it is not satisfactory to rely solely on the quantitative variable to define it. In addition to the number, it is important, if we want to define the large group, to consider many other variables: age and level of the students, the subject taught, the teaching conditions.

If the aforementioned criteria are taken as valid, in the UNAH, teachers face large groups in each of their classes. Large classes present university teachers with a problem that they have to face with innovative teaching methodologies as well as ingenious evaluation methods. The issue of the pedagogy of large groups was first raised in March 1984 with the APFA (Association of French Teachers in Africa). They decided to meet in a specialized workshop to lay the foundations for reflection on the teaching of French with large classes, a phenomenon that is very common in the vast majority of large African cities. The main objective of the workshop was to find a methodology that would help them solve the problems they faced daily in their classes in relation to the number of students, time, and the space where the educational activity is carried out. In that workshop, teachers highlighted the following objectives for working with large group pedagogy:

- Optimize working time
- Optimizing the workspace
- Optimizing learning for students
- Optimize student interactions
- Allowing the teacher to play his or her role
- Adapt pedagogy to the objective conditions of the educational system
- Help the teacher to better manage his or her class
- Encourage all students, despite their large numbers, to actively participate in learning activities by organizing the class into subgroups with appropriate techniques.

The interest of the Pedagogy of the great essentially relies on teamwork which presents multiple and multiform advantages for the student and the teacher. In addition to the pedagogical difficulties of working in large groups in relation to language teaching,***studies***also show that the time dedicated to oral practice in the classroom is insufficient, since the amount of time necessary for students to develop oral skills is not provided (Donato and Brooks, 2004), (Flewelling and Snyder, 2005), (Llisterri, 2007), (Polio and Zyzik, 2009). This is due to the emphasis placed on the teaching of grammatical postulates, the valuing of skills related to reading and writing, and to achieve participation of all students. With the current numbers of students per classroom, it is not

possible to dedicate time for everyone to intervene so that the teacher can verify the oral skills of each student. To this we must also add the beliefs of the teaching staff.

Hybrid Mode

An alternative presented by large group pedagogy is to appropriate technology to teach in hybrid or b-learning mode. With the proper implementation of technological tools, the student's oral production is not affected by the limitations of the classroom. The hybrid class offers a number of face-to-face meetings and the rest are conducted online through the use of a virtual platform where students can consult the materials used in class, do their work, and interact with their classmates. Students are responsible for their own learning, and each must learn to plan, monitor and evaluate their learning, which requires participation, since the teacher's role is that of a facilitator of learning, in charge of creating a structured and organized environment, setting goals, planning tasks, selecting materials and assigning adequate time to perform tasks (Richards and Rodgers, 2001).

Graham (2006) presents hybrid learning as the convergence of two archetypal learning environments. On the one hand, there are the traditional face-to-face learning environments that have been used for centuries, on the other, there are the distributed learning environments that have begun to grow and expand exponentially along with the expansion of the technological possibilities of communication and distributed interaction. Graham says that in the past these two learning environments have remained largely separate because they constitute different combinations of methods and media and have targeted different audiences. Currently, and having explored both environments separately, both their benefits and limitations, it is possible to combine them and take advantage of them without having to give up either of them. Dziuban and Hartman (2004) consider that this combination optimizes both environments.

The hybrid class constitutes a possibility of continuity in the teaching-learning process since it can be seen as the expansion and spatiotemporal continuity (face-to-face and non-face-to-face, synchronous and asynchronous) in the learning environment. As Duart puts it, "This formative modality is defined by the intertwined use of presence and non-presence in the classroom. Hybrid environments go beyond the complement of face-to-face with virtuality, and the complement of virtuality with face-to-face, it is about the integration of both modalities.

The hybrid language class provides resources for the student to learn at his or her own pace and time, and if there are deficiencies in this mode of learning, these are improved by adding face-to-face encounters. This is why a new scheme is being developed where the inclusion of face-to-face sessions enhances the mix to further optimize the teaching of languages virtually. (Ferreira and Morales, 2008).

Students are responsible for their own learning, and each must learn to plan, monitor and evaluate their learning, which requires active participation, since the teacher's role is that of a facilitator of learning, in charge of creating a structured and organized environment, setting goals, planning tasks, selecting materials and assigning adequate time to perform tasks (Richards and Rodgers, 2001).

Nieves (1996) conducted research with a group of students in a hybrid classroom and analyzed students' oral and listening skills. When comparing the hybrid class with a face-to-face class, he found superior results in the learning of students in hybrid classes and concludes by saying that they obtain greater fluency in their oral production by having to write more in the virtual field.

There are some advantages to developing oral production in a hybrid classroom with appropriate technological tools.

Table 1
Advantages in developing oral production in a hybrid classroom with appropriate technological tools

Professor	Student
1. Time is unlimited 2. Participation of all students 3. The student does it from any space 4. real-life conversational situations 5. personalized and instantaneous correction 6. Innovative methodologies 7. Dynamization in the classroom 8. Individualized evaluation 9. Facilitates autonomous work 10. Motivates the student to learn 11. Encourages creativity	1. There are no time limitations of the sessions in hours and minutes. Students can take their time when speaking, which allows anxiety to be reduced. 2. Each student can go at his or her own pace, not dictated by the different learning styles the teacher encounters in the classroom. 3. The student's sense of embarrassment when making a mistake is less with a computer than in the classroom.

Within the hybrid classroom are ICTs that allow the inclusion of new areas in the learning process through the use of Web tools. Today there is a wide variety of technological platforms and applications that favor communicative and collaborative approaches.

The International Commission on Education for the 21st Century of the United Nations Educational, Scientific and Cultural Organization (UNESCO) states that to learn and work successfully in an increasingly complex, information-rich and knowledge-based society, students and teachers must use ICTs to meet the challenges of a rapidly changing world, emphasizing four pillars of learning: learning to live together, learning to know, learning to do and learning to be. Technology stimulates creativity, provides specific solutions for different learning styles and problems, and contributes to globalization.

Method

The research carried out is framed within the field of language didactics and, within this field, it is circumscribed to the development of oral production competence and the implementation of technological tools. The study was mixed; the data collection tools were the following: interviews by means of questionnaires administered to English I students of the language department of section 1301. Discussion groups were also held. The questionnaire was designed and validated in the field by specialists to collect information by questioning English language learners. The purpose of this instrument was to learn about the technological resources used by students (computers, mobile devices, internet access). Knowing who could record and publish a video or audio on the Internet. To know what level of English they brought from their public or private schools.

Taking into account the objectives pursued by the pedagogy of large groups combined with the hybrid classroom, the project currently described was carried out with the clear objective of making the most of technological resources for the development of oral production outside the classroom. For this purpose, two morning English I classes were selected. From the first day, the teaching-learning and evaluation methodology was explained to them; it was explained that the class would be conducted in hybrid mode, and it was asked if everyone had access to mobile devices and computers with internet access. They were told what this modality consisted of and the objective of working with it as a project to develop oral production.

Each class was divided into two large groups. One group would come to the classroom for two days while the other group worked on the virtual platform. The next two days alternated. Each group was divided into subgroups of 5 members who made video and audio presentations in which they simulated real situations of everyday life, especially related to the descriptors of the Common European Framework of Reference A1 level (greeting, introducing themselves, introducing others, talking about themselves, their daily activities, among others). A WhatsApp group was created to assist students in real time with any concerns students might have and to send some assignments through this same medium and maintain communication. This group was enormously helpful as there was help from the students.

In the first week of class the students were socialized with the page tareavirtual.com, website with which they would work, then the students were trained in the different web tools (Moodle, Audacity, Vocaroo, Present.me, Thinglink, Youtube, Padlet, WhatsApp, SoudCloud), and Zoom. Training in these tools was done with guided work in the language lab, then put into practice with group work, using mobile devices to record audio and video, using computers to edit them, and then publishing these productions. The primary objective of this educational intervention was to put into practice the applications of technological tools that favor the acquisition of oral production.

At the end of this project in the language class for the development of oral production with the use of technological tools, a previously designed questionnaire was requested to validate the hypothesis if the technological tools contributed to the development of oral production in the language class. The data collected were of mixed order. Basically, the questionnaire aimed to collect information on the availability and ability to use the Internet by students, to obtain percentages of how many students owned mobile devices, or computers with Internet access, the time spent using the Internet, their impressions on the use of web tools that were implemented in their language class. This questionnaire was available on the internet to be filled out by each student who took the class. The questionnaire was filled out by all the students who took the class (99 students), and the methodology for data analysis was mixed.

Prior to the implementation of this project, first, several technological resources were explored to make sure that they could be used to develop oral production in e-learning. These tools included: Moodle, Vocaroo, Soundcloud, Youtube, Thinglink, Presentme, Padlet and Whatsapp.

The educational use of these tools was previously piloted in an innovation project carried out in the teacher training course "From Theory to Practice" given by the Department of Educational Innovation.

Table 2

Role of tectological tools and activities developed for the practice of oral production

Technological tool	role	activity
TareaVirtual.com	Mastery to which students would attain.	If used. Students had no difficulty gaining access.
Moodle	Virtual platform where the course would be installed with user access and password for each student with their respective resources and activities.	If used. Each student used his or her UNAH account number as a user.
Audacity	Platform for audio editing and recording	If used. The students used *Audacity* to conduct dialogues in pairs where they had to introduce themselves to each other, and then send the audio via WhatsApp with the goal of everyone listening to each other and giving feedback.
Vocaroo	Web site for online audio recording.	If used. The students used Vocaroo to record the alphabet while spelling their name, to say the numbers and their age. Once they recorded the message, they posted it to the tareavirtual.com website where the teacher reviewed it and gave them oral feedback on pronunciation. It should be added that this is a resource that offers very good possibilities for constant communication with students.
SoundCloud	Site to store audios and share them through links or integration.	If used. Unlike Vocaroo, it allowed to store files for a longer period of time.
Youtube	Site to publish videos for sharing and embedding in other sites.	If used. The English I class created its own YouTube channel for students to upload their presentations either individually, in pairs or in groups. Each student recorded his or her daily routine, then published it. We all had access to the presentations, students could hear each other learn from their own mistakes and from each other.
Thinlink	To publish interactive images with integrated audio and video.	Used. Thinglink to talk about family, students presented a picture of their family and described each of their family members through audio.

Introduce me to	To make Powerpoint presentations online	Students were asked to make a presentation describing a favorite character and then uploaded it to the site, and the other students commented on each presentation.
Padlet	Interactive walls	Here we worked with the theme of countries and nationalities, the students elaborated a mural where each one contributed a little bit of each country about their customs, typical dishes, language. Here they worked in small groups to carry out the activity and then presented it in a single group.
WhatsApp	Social network for type communication, text, image, video, audio.	If used, especially to maintain communication with the group. Although it allows audio and video sharing, it was preferred to integrate them into Moodle for grading purposes.
Zoom	It is a free to use application. It works as a means of communication through the Internet. It allows chat, call and video call sessions.	Allowed the participation of up to 500 students

All the tools used are free and easy to use, they facilitated communication, student participation allowing connection and relationship with people regardless of physical location, time, or number of students in a context characterized by openness, knowledge sharing, social networking and collaboration.

It should be noted that today's platforms include tools for audio recording. There are very advanced components for speech production that include real-time conversation and audio chats.

Researchers such as (Blake, 2008; Blake and Zyzik, 2003; Donaldson and Haggstrom, 2006; Salaberry, 2000) agree that virtual language teaching through the Internet offers a good learning environment, with advantages such as flexible scheduling and accessibility to study materials. Creating oral production tasks to be carried out virtually allows the student to speak without the limitations that are present in a face-to-face classroom. There are a number of advantages:

1. There are no time limitations of the sessions in hours and minutes. Students can take their time when speaking, which allows anxiety to be reduced.
2. Each student can go at his or her own pace, not dictated by the different learning styles the teacher encounters in the classroom.
3. The student's sense of embarrassment when making a mistake is less with a computer than in the classroom.

Results

This project implemented strategies of large group pedagogy for the development of oral production and interaction that allowed for an educational innovation in which it was demonstrated that it is possible to work with large classes and achieve the didactic objectives, in the case of languages specifically the development of oral skills not only inside, but mostly outside the classroom with the guided and didactic use of technological tools in language teaching.

The implementation of technological tools made it possible to develop a transversal learning process (languages-technology), which at the same time made it possible to learn technical technological language.

The students were able to develop autonomy, thus working on one of the competencies suggested by the educational model of the UNAH. This in turn allowed for more time to be spent practicing oral proficiency outside of class. The work was more dynamic and interactive for the students, who became more active agents in their learning. This work outside the classroom allowed for co-help, and co-evaluation.

In terms of oral production, the acquisition of authentic competencies in a real context was achieved. By taking place outside the classroom, barriers of time and fear of speaking in front of the class were broken down. There was more time to practice, and feedback.

In terms of large group pedagogy, it was achieved: Optimize work time, optimize work space, optimize learning for students, optimize student interactions; on the other hand, help the teacher to better manage his class and the division of labor to be able to attend small groups effectively.

Discussion and conclusions

A hybrid classroom with the right tools provides opportunities that a traditional classroom cannot. They can increase student motivation and also foster students' creativity and learning styles.

The tasks proposed for the development of oral production led to self-criticism. This is because the student can analyze his own learning process from small activities.

The use of technological tools promotes the student's autonomous work in oral skills. It does not depend on time or on the physical and synchronous presence of the teacher.

ICTs allow the inclusion of novel areas in the learning process through the use of tools.

ICTs produce a change in which the center of learning is located in the learner. The user becomes the organizer of his or her own learning process in which he or she plans his or her own objectives, manages and even evaluates this progression thanks to the autonomy provided to the user by ICT.

The teaching of a language and its efficiency depends partially on the ability to understand the methodology being used and the effects it can have on the students and

their needs. If, on the one hand, the student's primary need is to communicate orally, then opportunities must be provided for the student to develop this skill, focusing on language as a means of communication, with the purpose that the student has something to say when he or she needs to say it.

On the other hand, the student must be guided to seek his own growth as a learner of the language and his own opportunities, to be aware of his responsibility in this instruction process and to develop autonomy, since it is he who will receive the benefits of this learning process.

References

Anzieu, D. & Martin, J. Y. (1997). Situent les groupes larges entre 25 et 50 personnes.

Blake, J. & Zyzik, E. (2003). Who's helping whom? Learner/heritage-speaker networked discussions in Spanish. *Applied Linguistics, 24*(4), 519-544.

Blake, R. (2008). *Brave new digital classroom: technology and foreign language learning.* Georgetown University Press.

Bruneau, M. & Langevin, L. (2003). *L'enseignement aux grands groupes: quelques balises pour la pratique ou mieux les comprendre pour mieux les gérer.* Université du Québec a Montréal

Cassany, D., Luna, M., & Sanz, G. (1994). *Enseñar lengua.* Graó.

Champagne, M. (1996). *L'enseignement aux grands groupes,* (2ª Ed.). Québec, Université Laval, Réseau de valorisation de l'enseignement.

Creswell, J. W. (1999). *Mixed-method research.* SAGE Publications

DAH, L.O. (2002). Que peut-on faire aujourd'hui dans les classes à gros effectifs ? *Revue pédagogique Attaalim de l'Institut pédagogique national (Algérie), 29*.

De Peretti, A. (1987). Les grands groupes et la pédagogie. *Dialogues et Cultures, 30,* 32-45.

Dioum, A. (1995). *Enseigner dans une classe à large effectif. LaSalle (Québec): Hurtubise HMH*. Agence de Coopération Culturelle et Technique (ACTT).

Donaldson, R. & Haggstrom, M. (2006). *Changing language education through CALL.* (pp.95-118). Routledge.

Donato, R. & Brooks, F. B. (2004), Literary Discussions and Advanced Speaking Functions: Researching the (Dis) Connection. *Foreign Language Annals, 37*, 183–199.

Dziuban, C. & Hartman, J. (2004). Blended learning. *Educause Research Bulletin*, *7*.

Ferrance, E. (2000). *Action research.* The Education Alliance at Brown University.

Ferreira, A. & Morales, S. (2008). La efectividad de un modelo de aprendizaje combinado para la enseñanza del inglés como Lengua Extranjera: Estudio empírico. *RLA*, *46*(2), 95-118. http://www.scielo.cl/scielo.php?pid=S0718-48832008000200006&script=sci_arttext

Flewelling, J. & Snider, D. (2005). Extending the foreign language classroom with technology: Creating computerized oral activities and tests. In *The 2005 Report of the Central States Conference on the Teaching of Foreign Languages*, (pp. 85-98).

Graham, R. (2006). Blended learning systems. Definition, current trends, and future directions. In Curtis, J. & Charles, R. *The handbook of blended learning: Global perspectives, local designs.* San Francisco.

Llisterri, J. (2007). La enseñanza de la pronunciación asistida por ordenador. En *XXIV Congreso Internacional de AESLA. Aprendizaje de lenguas, uso del lenguaje y modelación cognitiva: Perspectivas aplicadas entre disciplinas*.

Nieves, K. A. (1996). *The development of a technology-based class in beginning Spanish: Experiences with using EXITO.* [Doctorate Thesis]. George Mason University.Virginia.

Polio, C. & Zyzik, E. (2009). Don Quixote meets *ser* and *estar*: Multiple perspectives on language learning in Spanish literature classes. *Modern Language Journal, 93*(4), 550-569. http://humweb.ucsc.edu/eve/pdfs/MLJ_2009.pdf.

Richards, J. & Rodgers, T. (2001). *Approaches and methods in language Teaching* (2ª Ed.). Cambridge University Press.

Salaberry, M. R. (2000). L2 morphosyntactic development in text-based computer-mediated communication. *Computer Assisted Language Learning, 13* (1), 5-27.

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CRITICAL THINKING, DIVERSITY AND INTERCULTURALITY: AN ESSENTIAL INTERRELATION IN THE ENGLISH FOREIGN LANGUAGE CLASS

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Abstract. Nowadays, the world needs active people who create innovative and practical ideas to solve social problems effectively and peacefully. Therefore, schools should prepare students to achieve this purpose. This research aimed to identify the importance that educational leaders in Colombia give to critical thinking, interculturality, and diversity in English as a Foreign Language classes. These categories are significant because students can adopt them to become socially responsible citizens. The study applied a systematic review of scientific articles in academic databases. As a result, it identified that the current focus of English classes has a low social impact. The research proposed that teachers focus on aspects of learning beyond grammar, vocabulary, and the traditional four skills. Above all, they should be open to exploring local and global social problems with a critical, diverse, and intercultural perspective. This correlation is vital to strengthen the social commitment of students in the creation and execution of plans and strategies for the benefit of society as a whole.

Keywords: Cultural diversity, interculturality, English, critical thinking.

PENSAMIENTO CRÍTICO, DIVERSIDAD E INTERCULTURALIDAD: UNA INTERRELACIÓN IMPRESCINDIBLE EN LA CLASE DE INGLÉS COMO LENGUA EXTRANJERA

Resumen. En la actualidad el mundo requiere personas activas que generen ideas innovadoras y prácticas para resolver problemas sociales de manera efectiva y pacífica. Consecuentemente, las escuelas deberían preparar a los estudiantes para lograr este propósito. Esta investigación tuvo como objetivo identificar la importancia que los líderes educativos en Colombia proporcionan al pensamiento crítico, la interculturalidad y la diversidad en las clases de inglés como lengua extranjera. Estas categorías son significativas porque los estudiantes pueden asumirlas para convertirse en ciudadanos socialmente responsables. El estudio aplicó una revisión sistemática de artículos científicos en bases de datos académicas. Como resultado, se identificó que el enfoque actual de las clases de inglés tiene un bajo impacto social. Al respecto, la investigación propuso que los maestros se centren en aspectos del aprendizaje más allá de la gramática, el vocabulario y las cuatro habilidades tradicionales. Por encima de todo, deberían estar abiertos a explorar problemas sociales locales y globales con una perspectiva crítica, diversa e

intercultural. Esta correlación es vital para fortalecer el compromiso social de los estudiantes en relación con la creación y ejecución de planes y estrategias para el beneficio de la sociedad en su conjunto.

Palabras clave: Diversidad cultural, interculturalidad, inglés, pensamiento crítico.

Introduction

In order to develop meaningful teaching and learning processes, it is necessary to plan and carry out an education that takes into account the realities, routines and contexts of the students and prepare them to face different situations throughout their lives. However, in Colombia, official guidelines suggest contents, times, methodologies and goals that are based on statistical information or on imaginaries about students that are not always in line with the realities of the school population. This responds to the bureaucratic, hierarchical and impersonal nature of the national education system (Quintana, 2018). Those who decide on educational matters are generally administrative officials who do not experience the realities, routines and contexts in which students and teachers develop (Castillo et al., 2018). Consequently, the lack of knowledge about students' strengths, concerns, challenges and expectations makes it difficult for the educational system to train them to assume a meaningful role in their contexts and in society. In fact, in the specific case of the teaching and learning of English, according to Valencia and Vega (2022), the National Bilingualism Plan, which seeks to strengthen the teaching of this language in Colombia, has several errors, such as ignoring the national context and using foreign standards that do not adapt to the reality of the country.

In Colombia, there is a need for English teaching and learning that interconnects three axes: the development of critical thinking, interculturality and diversity (Torres, 2022a). Its purpose is for students to be able to address situations and problems in all contexts (e.g., in the school, personal and work environment) by being aware of reality, its implications, causes, effects and possible solutions. To do this, it is necessary that the subjects learn not to rely on prejudices and stereotypes; think and find a way to interpret and explain problems based on their listening, research and observation skills, their cross-cultural experience and use of resources.

The teaching of English in Colombia at the official level has the shortcoming of not developing a proposal that strengthens the social and intercultural aspects based on a critical analysis. In fact, official documents in force from 2016 to the present, such as the English learning meshes for transition to fifth grade and the suggested curriculum outline are two official documents proposed by the MEN that reduce the concept of culture to a series of characteristics and customs. For this reason, they restrict the treatment of cultural topics by proposing objectives that are devoted solely to students describing traditions and festivities (Torres, 2022b).

Educational institutions are living environments in which students interact with different identities, histories and challenges. The idea of a standardized education reduces the possibilities of the teaching and learning process to have a positive impact on at least two areas of students' lives: on the one hand, motivating them to continue learning in their daily lives; and, on the other hand, offering them tools that they can critically and creatively adapt to face different circumstances.

The disconnection between the approaches proposed by the MEN regarding the teaching and learning of English, with the educational and sociocultural reality that is experienced daily in schools and Colombian society creates the need to reformulate the approach assigned to this language at the school level (Castañeda, 2020). The purpose of

this is to generate strategies to achieve an education that is useful to students for different social scenarios throughout their lives. Overcoming the problematic conception of a decontextualized education with little impact on students' lives is a challenge if the ultimate goal is for students to be able to function in a diverse world, enhancing their capacity for innovation and their willingness to listen actively, communicate critically and assertively, and to continue learning and socializing knowledge.

The objective of the literature review was to identify the importance that educational leaders in Colombia provide to critical thinking, interculturality and diversity in English as a foreign language class. With documentary information as input, strategies were proposed to establish an English teaching that prepares students to perform in all areas of their social life, relating critical thinking, diversity and interculturality. In this order of ideas, we explored student diversity in Colombia, the tendency to homogenize the teaching and learning of English despite the different cultural and socioeconomic particularities of the students and their schools. In response, it was proposed to chart a path towards critical, intercultural and contextualized English teaching and learning.

It was concluded that it is unavoidable to propose a new notion of education that contributes not only to the integral development of students in the national context, but also in the global context, which is equally complex and diverse. Therefore, effective education goes beyond technical preparation; it must foster the internal transformation of students into citizens with the capacity for critical thinking and dialogical relationships with beliefs, cultures and worldviews that are not always the same as their own, but whose interaction constitutes an opportunity to approach and propose solutions to social problems from different perspectives.

Method

Documentary research was carried out with the help of ATLAS.ti software, which was useful for organizing, analyzing and interpreting the information collected. Its paradigm was qualitative based on Creswell's (2014) approaches to identify the relationship that the educational system in Colombia and its educational policies make on the teaching and learning of English as a foreign language with critical thinking, interculturality and diversity.

A systematic review of scientific articles published in journals located in academic databases such as Google Scholar, Redalyc, Scielo, Science Direct, EBSCO and Scopus was carried out. This made it possible to recover accumulated knowledge in a reflective, critical and proactive exercise (Galeano, 2004). In addition, contrasts were made between the current situation of English teaching and learning in the country with the desired situation: to guide the learning of this language by preparing students to think critically about information, personal, local and global issues, cultures and diversity of identities, thoughts and perspectives to curb all types of discrimination, stereotyping and false and biased information; to self-regulate and develop their metacognition and creativity to develop confidence in their own ability to explore and come up with ideas that benefit society.

The key words used in the search for articles were "diversity", "critical thinking", "interculturality", "culture", "English teaching in Colombia", "National Bilingualism Plan", "National English Program", "English learning curricula for transition to 5th grade" and "Suggested curriculum outline". English grades 6 to 11". The research categories were coded in order to track them, find relationships between them in a structured way and perform the data analysis (Table 1). Articles published in both English and Spanish were selected to provide their position and analysis of governmental and/or institutional approaches to the teaching and learning of English in Colombia. Once the results were obtained, a specific selection was made of the articles that analyze the way in which the

English curriculum is approached and conceptualized in the country, taking into account the selected categories.

Table 1
Coding

Coding	Concept
DIV	Diversity
PENS-CRIT	Critical thinking
INTCLRD	Interculturality
CLTRA	Culture
EI	English language teaching in Colombia
PNV	National Bilingualism Plan
PNI	National English Program
MLLS-PRM	English language learning frameworks for transition to 5th grade
ESQ-CRR	Suggested curriculum outline. English grades 6 to 11

Note. the table shows the coding applied in the analysis of the research corpus.

From the universe of 94 research papers, 53 papers located in indexed journals and journal articles were selected for the period from 2015 to 2022, which spans 8 years. The decision to select this period responds, essentially, to the fact that in 2015 the National English Program 2015-2025 in Colombia came into force, which would eventually raise discussions about its approaches, processes, applications in school classrooms and results both expected and obtained to date. A categorical matrix was prepared in which the title of each article, the author(s), the year and country of publication, the methodology used and the conclusions drawn were recorded and systematized. The matrix was interpreted by questioning and comparing the data obtained and a thematic analysis was carried out, taking into account the patterns that the documents followed in each of the study categories, which made it possible to understand the phenomenon in question, its progress, mistakes and gaps.

Based on this information it was possible to answer the research question: what importance do educational leaders in Colombia place on critical thinking, interculturalism and diversity in English as a foreign language classes? Taking into account this questioning and the lack of integration of this triad to form active and socially committed citizens, the research generated new contributions to the episteme, proposing that, at the curricular level, the teaching and learning of English should establish as central objectives to form innovative, inventive and discovering subjects. At the same time, to train them to be able to exercise criticism by checking for themselves the approaches that are made socially to different cultures, countries, communities and subjects; not accepting all information they receive in their daily lives, media and textbooks simply because people in positions of authority such as teachers, rulers or journalists so determine. This is achieved by teaching and practicing English through students' curiosity, questioning and

research on issues that concern society, and encouraging them to learn about the social world and different perspectives, as well as to analyze, synthesize, verify and evaluate the information they gather through their observations, readings, experiences, interactions and reflections, becoming active protagonists of their own learning. Thus, the art of thinking for oneself, exalting the value of diversity and responding skillfully to the solution of social problems is achieved through the intentional and planned combination of three categories: critical thinking, diversity and interculturality.

Results

Student diversity in Colombia

In Colombia, students come from different backgrounds and socioeconomic levels. According to the National Administrative Department of Statistics (DANE, 2022a), in 2021, 82% of students were enrolled in the public sector while 17% in the private sector. Of these, 75% are in the urban area and 24% in the rural area. Privateschools in the country host mostly students from middle and high socioeconomic strata, while public schools receive mainly students from lower socioeconomic strata (Guarín, Medina, & Posso, 2018; Montes, 2017; Radinger, Echazarra, Guerrero, & Valenzuela, 2018).

On the other hand, according to the Diario de la República, referring to Colombia, "in private education there are 16 students for every teacher; in public education, the figure increases to 25 students" (Gaviria, 2022, p. 1.). Then, in general, there is less crowding of students per classroom in private schools, which facilitates a personalized interaction between students and their teachers, allowing the latter to focus on attentively addressing the academic and social strengths and difficulties that students present (Araújo et al., 2016; Gómez, 2018; Guarín et al., 2016; López et al., 2015; Silveira, 2016). Added to this, in 2021 "the performance gap between public and private schools grew 7 points, in favor of private schools" (El Espectador, 2022). Students, especially from rural sectors or located in the outskirts of cities, did not have access to the Internet during the pandemic and about 16% had to work during the pandemic, which led to an increase in school dropout rates (Gómez et al., 2022; El Espectador, 2022).

Therefore, it is not possible to generalize the situation faced by the Colombian school population. Not everyone enjoys the same opportunities. In addition, school dropout occurs more in students with low socioeconomic conditions, with little access to technology and school transportation, with neglect or disinterest on the part of their parents in the educational process and with the need to work to help meet family needs (Gómez et al., 2022).

Public schools, on the other hand, have been severely affected by the limited budgetary resources granted by the State and the centralized allocation of these resources. As a consequence, in some public educational institutions, students do not have access to a variety of educational materials, transportation and complete school meals. This is detrimental to the quality of life of many of the students, who already face a complex economic situation at home. Added to this is the fact that, according to UNESCO (2022), in Colombia, public primary and secondary schools have formally enrolled 198,000 migrant students from Venezuela in order to guarantee their right to education. However, many of the schools do not have enough teachers to handle the high number of local and migrant students. Similarly, there are situations of overcrowding in classrooms, for cases of face-to-face education, and difficulties in accessing digital education due to lack of connectivity and technological tools (Gómez et al., 2022; López et al., 2018). A summary of the 15 articles investigated is shown in Table 2.

Table 2
Researchers' contributions on student diversity in Colombia

Author	Summary
Guarín, Medina and Posso (2018) Montes (2017) Radinger, Echazarra, Guerrero, and Valenzuela (2018)	The country's private schools receive mostly students from the middle and upper socioeconomic strata, while public schools receive mainly students from the lower socioeconomic strata.
DANE (2022a)	82% of students are enrolled in the public sector and 17% of students are enrolled in the private sector.
Gaviria (2022)	In classrooms, there are 16 students per teacher in the private sector and 25 students per teacher in the public sector.
Araújo et al. (2016) Gomez (2018) Guarín et al. (2016) López et al., (2015) Silveira (2016)	In general, students in the private sector enjoy a more personalized and less crowded education compared to students in the public sector.
El Espectador (2022)	There is a performance gap between public and private sector students, with the private sector achieving better performance.
Gómez et al. (2022)	The causes of student dropout are low socioeconomic conditions, difficult access to technology and school transportation, and parental neglect or disinterest in the educational process.
UNESCO (2022)	198.000 Venezuelan students in Colombia are enrolled in the educational system. However, some 260,000 children and young people are still out of school.
Gómez et al. (2022) López et al. (2018)	It is common for official school classrooms to be overcrowded. On the other hand, low-income students suffer from poor connectivity and low access to technological tools.

Note. Sources related to student diversity in Colombia.

Homogenization of English language teaching

The bilingualism guidelines, policies, programs and plans proposed by the MEN have not taken into account the contexts of the schools, nor the sociocultural characteristics of the student body (Cruz, 2017; Díaz and Rúa, 2016; Miranda, 2021; Roldán and Peláez, 2017; Suárez, 2017). Although a humanistic, intercultural and sociocultural approach is promoted in official documents, in Colombian educational practice there is a constant homogenization of contents, behaviors, skills, abilities, skills and identities (Izquierdo, 2018; Pineda and Loaiza, 2017); since there is a tendency to homogenize the social logos and everything that deviates from this model is related to subversive (Chacón, 2022).

The curricular proposals in Colombia have been marked by a standardized, academicist and vertical notion of teaching, focused on memorization and repetition of content and not on the development of skills so that students can construct their own arguments and questioning on the topics addressed in each class. Therefore, education in the country does not prioritize the formation of critical subjects, but rather the fulfillment

of administrative requirements such as the execution and coverage of academic content within a given period of time (Torres, 2022a).

The educational rationality underlying the curriculum in Colombia conceives teachers solely as executors of previously prescribed and normatively and quantitatively monitored teaching practices (García and Reyes, 2022; Peláez and Usma, 2017). In this way, the concept of education is reduced to traditional, transmissionist, hierarchical and training pedagogy. This type of mechanistic approach does not provide opportunities for students to raise questions, investigate, analyze and contrast different sources of information, going through different paths to reach knowledge and building conclusions based on the relationship they establish with their environment. This approach focuses on training subjects who know how to repeat, but not how to question, create, debate and solve problems. Therefore, to combat such a situation, it is imperative that teachers guide their students to be critical, comprehensive and reflective (Ferreira and Almeida, 2019; Oses et al., 2022).

The MEN lacks more in-depth knowledge of the pedagogical and linguistic competencies of local English teachers; in fact, it does not involve them in the process of designing pedagogical policies for the teaching and learning of English (Méndez et al., 2020). In addition, the application of bilingualism policies focused on this language has not been successful. Its implementation is "a cold didactic act" (Garavito de Archila and Azevedo, 2021, p. 1.) This has resulted in students becoming demotivated to learn the language, as they cannot appreciate its usefulness in the development of their life projects (Castillo et al., 2018; Fandiño and Bermúdez, 2016a, 2016b; Gallego et al., 2020; Gómez and Guerrero, 2018; Hurie, 2018; Mejía, 2016; Méndez and Clavijo, 2017; Suárez, 2017; Viáfara, 2016a, 2016b). For example, in rural areas of the department of Antioquia, Roldán and Peláez (2017) have pointed out that:

> The municipal educational agents conceive the language policy (of bilingualism) as an ethereal discourse, well structured, but unattainable for the remote populations of the country, and conceive the use of English as irrelevant and unnecessary in the current situation of the municipality, due to the lack of adaptation to the context and local needs. (p. 131)

A summary of the 27 articles investigated is shown in Table 3.

Table 3
Researchers' contributions on the homogenization of English language teaching in Colombia

Author	Summary
Cruz (2017) Díaz and Rúa (2016) Miranda (2021) Roldán and Peláez (2017) Suarez (2017)	Educational policies ignore the real needs of the student body.
Chacon (2022) Izquierdo (2018) Pineda and Loaiza (2017)	There is a constant homogenization of content.
Torres (2022)	The objectives of teaching and learning are focused on coverage, but not on the formation of critical subjects.
Garcia and Reyes (2022) Pelaez and Usma (2017)	There is a disconnect between bilingualism policies and social realities.
Ferreira and Almeida (2019) Oses et al. (2022)	It is necessary to develop a critical education that contributes to the construction of a peaceful society.
Méndez et al.(2020)	It is necessary for the MEN to open spaces for English teachers at the school level to participate in the design of policies related to the teaching and learning of English.
Garavito de Archila y Azevedo (2021)	English teaching in Colombia tends to be impersonal.
Castillo et al. (2018) Fandiño and Bermúdez (2016a, 2016b) Gallego et al. (2020) Gomez and Guerrero (2018) Hurie (2018) Mejia (2016) Méndez and Clavijo (2017) Suarez (2017) Viáfara (2016a, 2016b) Roldán and Peláez (2017)	Public policies focused on the teaching and learning of English in Colombia need to adapt their contents and activities to the different contexts, needs and interests of students.

Note. Sources related to the homogenization of English teaching in Colombia.

Towards a critical and intercultural English language education

Teaching English as an end in itself is not enough. It is of utmost importance to associate it to the life of the students, as a means for them to develop in all dimensions of life. The challenge facing the teaching and learning of English in Colombia is the reformulation of public policy and the concept of school in order to understand this process as a space in which students can get to know themselves and others, developing their creativity and achieving an active and social commitment to humanity. In order to learn and use different languages, subjects need to be open to new perspectives, including those that differ from their own ideas. Through contact with different languages, students are expected to be able to interpret and analyze problems from multiple scenarios, through different cultures and voices.

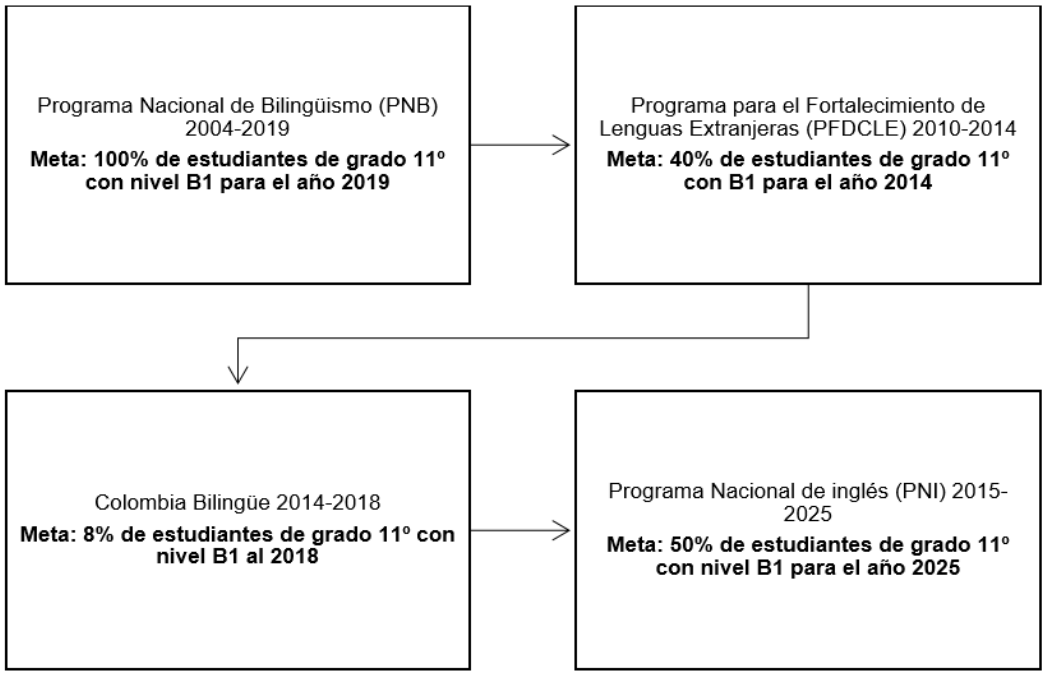
Another challenge associated with the teaching and learning of English is the need for methodological innovation, as traditional methods currently predominate. Many

teachers are not sufficiently prepared linguistically to teach English, make excessive and inadequate use of textbooks and reduce bilingual communicative competence to the formal level of the language, leaving aside interculturality. The latter, according to Torres (2021) is of crucial importance in education, since it allows students to learn to value, know and respect their diversity and that of others, in order to achieve a more dialogic, critical and inclusive society. Failure to establish relationships between English and current social life generates that students lose interest in learning the language and knowledge of cultural diversity is not promoted (Bastidas, 2017; Bastidas and Muñoz, 2017, 2018, 2020; Galindo and Moreno, 2019). Therefore, it is urgent that teachers take action to guide their students to value their own roots as well as those of other subjects, and to combat, through research, questioning and reflection, all types of discrimination and cultural hierarchies.

Due to the unsatisfactory results of bilingualism policies in Colombia, the MEN is constantly issuing documents related to the National Bilingualism Plan (Figure 1). However, this is done unilaterally and no spaces are opened to socialize the discussion with teachers from different regions of the country who are assigned to teach English (Méndez et al., 2020). In addition, some of the current projects are in contradiction with the new objectives and strategies proposed. This juxtaposition of guidelines generates confusion among teachers, as there is no programmatic clarity about which goals to achieve, since they differ from each other.

Figure 1

Initiatives and goals for strengthening English in Colombia



Note. The figure compiles the English learning goals proposed by the Colombian Ministry of Education.

Like interculturality, diversity has also not been conceptualized as a central component of the educational process that would enrich students' worldview by bringing their traditions and identities into dialogue with those of other communities. In fact, in Colombia, the term "cultural diversity" is generally conceived in a restrictive way to deepen the gap between the indigenous and the Western, as if it were the only expression of diversity. Sarrazin (2018) identified that the concept is approached in a very simplistic

way because when alluding to cultural diversity, the most salient example given is indigenous people; leaving aside other cultures.

At the school level, in Colombia it has been identified that students of indigenous origin are frequently discriminated against because of their culture, customs and skin color (Alayon, 2020). Their peers assign them pejorative nicknames, even referring to them as "other", "inferior", "vulgar" and "different". This fact reveals that, although the Colombian State defines interculturality as "the ability to know one's own culture and other cultures that interact and enrich each other in a dynamic and reciprocal manner, contributing to shape in social reality a coexistence under equal conditions and mutual respect" (Congress of Colombia, decree 804 of 1995, Art. 2), there is a deep void about what this implies in educational practice. The little attention that has been paid to fundamental values such as diversity and inclusion seriously harms society as a whole. By standardizing thoughts, ideas, expectations and projections, educational practice produces passive subjects, without greater engagement with their environment. In this regard, Moya et al. (2018) identified that the emphasis assigned to interculturality in Colombia is functional, does not drive the development of critical thinking, promotes a limited vision society, characterizes speakers as monolithic entities, and perpetuates a narrow vision that tends to discriminate languages and communities. However, diversity is a fundamental characteristic of all human beings and is a key factor in their development as individual and social beings (Muñoz and Saiz, 2022). Therefore, it is essential that teachers bet on continuously renewing and rethinking their work, promoting dialogue, encounter, gaze and gesture in a pedagogy of encounter (Restrepo, 2017). The summary of the 11 articles investigated can be seen in Table 4.

Table 4

Researchers' contributions on critical and intercultural English language education in Colombia

Author	Summary
Torres (2021)	The development of interculturality contributes to the formation of a more dialogic, critical and inclusive society.
Bastidas (2017) Bastidas and Muñoz (2017, 2018, 2020) Galindo and Moreno (2019)	Failure to address interculturality in the classroom results in students not delving deeper into cultural diversity.
Sarrazin (2018)	A simplistic definition of the concept of "diversity"prevails in education.
Alayon (2020)	In Colombia, there is often discrimination against students of indigenous origin at school.
Moya et al. (2018)	The emphasis on interculturality in Colombia is functional.
Muñoz and Saiz (2022)	Diversity is a key factor in the individual and social development of every human being.
Restrepo (2017)	It is essential to promote a pedagogy of encounter.

Note. Sources related to critical and intercultural English language education in Colombia.

Discussion

Research proposal: a critical, diverse and intercultural teaching and learning of English

In order for English classes to contribute significantly to students in their integral formation to become active citizens in the plural world, it is necessary to make an epistemological shift in which educational institutions strive to strengthen critical and social pedagogy in English classes, introducing topics that allow students to investigate, learn and discuss social, political, economic, cultural and academic issues in their immediate environment, as well as national and global level. The teaching of English should not be reduced to the merely linguistic field, nor to the reproduction of stereotypes, but should be oriented to generate personal and social changes that contribute to combat all types of discrimination, annulment, violence and exclusion within the school and in society. These are necessary steps to transform the vision of students towards interculturality, recognizing the importance of each language, culture and territory.

It is essential that English classes open the possibility for students to peacefully resolve conflicts through a comprehensive understanding of situations, attitudes, behaviors, actions and contradictions in order to overcome the roots of social problems. In the teaching and learning of English, students should be encouraged to intentionally make efforts to understand others, respecting their thinking even if they do not share the same point of view; it is also relevant to propose actions to defend human rights and human dignity from a critical social perspective.

To strengthen critical thinking, it is crucial to go beyond uniform curricula. Schools must create spaces for democratic exchange and participation that welcome all students, their interests and needs. Flexible curricula should be created that favor diversity and can be modified according to the students, the critical and contextual approach to

social realities and problems at different scales, the autonomy of teachers and the optimization of the learning process.

The utilitarian approach to the curriculum not only ignores the realities of the schools, the characteristics of the students and their generational group, but is also based on different prejudices, biases and generalizations. When a vertical curriculum is imposed, it targets a type of student incorrectly called "standard," "ideal," or "normal." The fundamental purpose of this type of curriculum is to homogenize the "different" or those who are outside the "norm". However, this always comes into tension with the fact that in school there is no single way of being, constructing identity, thinking, relating and interpreting. It is important to recognize the spaces, times and contexts that differentiate one student from another.

For example, although the younger generations are currently technologically inclined, it is not possible to say that this is true in all cases. Many students do not have access to all available media and technological tools, which makes them the "info-excluded" of society. In fact, in Colombia, in 2021, the percentage of households that owned a desktop, laptop or tablet computer was 37%, while in populated centers and dispersed rural areas 91% of households did not have these tools (DANE, 2022b).

Education needs to be approached differently from the schooling notion in order to minimize social, educational and technological gaps. Decrees, speeches, descriptions, documents and strategies alone are not enough, especially if they are decontextualized from the realities of each territory. The school must break with standardization aimed at training a competitive workforce. It is necessary to create inclusive curricula that take into account the social, cultural and economic characteristics of the students. It is essential for schools to welcome students, recognizing the richness of their sociocultural, ethnic and linguistic heterogeneity, and to take advantage of it pedagogically for their benefit.

Although individuals share generational identities with people of contemporary ages, each human being and environment are unique. Therefore, there is no single standard that is applicable to all students at the national or international level. Therefore, it is necessary to provide students with an education that at a macro level requires them to know and critically analyze different social situations and, at the same time, establish relationships with their lives, contexts, experiences, needs and talents. With this, students are expected to be prepared to face diverse situations in the social scenarios in which they develop, making critical analysis, arguing, raising ideas, asking critical questions and solving problems.

The decontextualized way in which the MEN formulates the English curriculum corresponds to most traditional school cultures that conceive of the student as a receiver who needs to be filled with information. The "democratic" management of education at the state level treats students as dependent beings without the possibility of emancipation. Subjects who must comply with the pedagogical guidelines assigned to them, regardless of the fact that they often find them empty, meaningless and that they do not provide them with elements to develop in their daily lives, or tools that they can adapt and evolve throughout their lives. Society is in continuous transformation and requires propositional, innovative and creative subjects, not mere spectators who are in charge of reproducing what the majority dictates.

The top-down approach to English language teaching is limiting. Teaching has become the fundamental act of the school, with teachers unilaterally exposing their knowledge, while learning has been restricted to the act of receiving information, remembering facts and reproducing grammatical structures, or simply managing to communicate in another language, but without generating creative, argumentative, critical and propositional content. This banking concept of education establishes a culture that does not allow for questioning and innovation, but rather for silence and replication.

Contrary to a narrow vision of education or curriculum, an education that defends plurality, vindicates human relations, and encourages imagination and discussion from different points of view should be encouraged. A transformative, open and interactive education between all the subjects immersed in it and their environments, as part of a continuous process. Teaching and learning are not isolated events. Both are interwoven from the central influence of language, culture, interaction and social and historical contexts. Thus, the work to be done with students is not to give them a series of contents and ensure that they can reproduce them, nor does it consist of them replicating cultures or opinions coming from a curriculum and a pedagogical practice that is foreign to their lives. Finally, it is vital that, in the process of teaching and learning English and its practice, teachers take care to guide students in the path of discovering the explicit and implicit objectives of oral and written discourses; in addition, it is pertinent that they are allowed to investigate the background of the sources of information and their authors to discover the reasons why they defend, omit or are against certain approaches; determine the validity and veracity of sources and information; distinguish facts from opinions, the illusory from the valid and true; identify gaps, carry out alternative research, discuss the different meanings of texts; contrast different points of view, demystify ideologies and construct their own opinions, questions, arguments and formulations.

In this order of ideas, this article proposes that, during the process of teaching and learning English, teachers should follow the following strategies:

1. To attract the attention and curiosity of students based on their own realities.
2. Encourage students to explore their environment and its issues.
3. Pose questions for students to describe their situations and make contrasts with other realities and cultures exposed in news, networks, books and press, and research on local and global challenges.
4. Propose exercises in which students inquire about theoretical elements that help them identify the origin of the problems and their consequences. At the same time, it is essential that they confront their beliefs and those of society with analyses that go beyond the merely explicit and literal, managing to read between the lines.
5. Encourage students to express their points of view, their questions and criticisms, and to raise possible solutions that dignify the value of the subjects, their diversity and their different cultures.
6. Encourage spaces for students to communicate their findings and ideas through images, dramatizations, and written or oral communications.

Conclusions

The research aimed to identify the importance that educational leaders in Colombia give to critical thinking, interculturality and diversity in English as a foreign language class. Although officials and researchers in the area emphasize that it is urgent to provide students with a comprehensive education, it has not been proposed how to achieve this by combining these three elements at the same time; rather, they are approached in a fragmented manner, without establishing dialogical relationships among them. Through a documentary study, it was identified that in the country in question there is a conception that learning English consists of speaking the language fluently and understanding it, mainly to meet school requirements or to access academic and professional opportunities. Therefore, the research proposed that, if language learning is combined with the development of critical thinking, diversity and interculturality, students not only develop their language skills or general knowledge about countries or

cultures at a narrative and informational level, but also have the opportunity to go further and explore different cultures, social realities and issues based on their questions and research rather than on comments without arguments or credibility; unmask prejudices and false approaches; value the diversity of identities, ways of communicating and relating; question their own assumptions and those of others; contrast different perspectives, narratives and voices; see what lies behind the issues and, with creativity, develop their own viable approaches to arrive at solutions that transform social realities.

There is an unavoidable need to rethink English curricula that do not take into account the students and the context in their design, planning and implementation. Educational tasks and goals set at the official and institutional level should not have as their main objective to cover as many topics as possible, but should focus on the way in which these topics are relevant and applicable in different scenarios of students' present and future lives. Therefore, both MEN and educational institutions, including educational leaders, should implement participatory strategies and methodologies to get to know students and their life histories more deeply.

The world is in continuous transformation. Therefore, teaching and learning processes must provide tools for students to adapt to ever-changing situations and teachers must contribute to the development of their critical thinking. This higher-order thinking is extremely useful for students to form well-grounded political and social opinions, growing holistically and learning to be socially engaged, empathetic, curious and proactive. Progress towards a more participatory society goes hand in hand with the exercise of an active citizenship that solves problems in a peaceful, dialogic, democratic and successful manner, mitigating all types of violence, manipulation and constraint. In order to achieve this ultimate goal, which is transcendental for the well-being of humanity, critical thinking, interculturality and diversity are pillars that must be included in the teaching and learning of English in a particularly important way.

References

Alayon, C. (2020). Trayectorias de la Ruta Integral de Atención a situaciones de presunto Racismo en Bogotá. *Revista Latinoamericana de Estudios Educativos, L*(3), 121-144. https://doi.org/10.48102/rlee.2020.50.3.123

Araújo, M., Carneiro, P., Cruz, Y. y Schady, N. (2016). Teacher quality and learning outcomes in kindergarten. *The Quarterly Journal of Economics, 131*(3), 1415-1453.

Bastidas, J. (2017). More than half a century teaching EFL in Colombia secondary schools: Tracing back our footprints to understand the present. *HOW, 24*(1), 10-26. http://dx.doi.org/10.19183/how.24.1.348

Bastidas, J. y Muñoz, G. (2017). *La enseñanza del inglés en la educación secundaria en Colombia desde 1972 hasta 1994: Una historia desde los programas, los métodos y los textos*. Pasto: Editorial Universidad de Nariño.

Bastidas, J. A. y Muñoz, G. (2018). *Hacia una comprensión del bajo nivel de inglés de bachilleres en pasto, Colombia.* In *X Coloquio Internacional de Investigación en Lenguas Extranjeras*. Veracruz, México.

Bastidas, J. A. y Muñoz, G. (2020). Factors Influencing English Language Learning of High School Students in Pasto, Colombia. *Folios*, *51*, 163-181. https://dx.doi.org/10.17227/folios.51-8676

Castillo, M., Montoya, J. y Castillo, L. (2018). La educación, una mirada desde el conflicto social en Colombia. *Revista Educación y Humanismo, 20*(34), 216-232. http://dx.doi.org/10.17081/eduhum.20.34.2868

Chacón, M. (2020, 8 de agosto). El número de estudiantes que ingresan a la educación superior viene en constante reducción. *El Tiempo*. https://www.eltiempo.com/vida/educacion/informe-revela-disminucion-de-estudiantes-matriculados-en-universidades-de-colombia-526992

Chacón, J. (2022). La escuela multiversa: conjeturas hacia otro relato educativo. *Educación y Ciudad*, (43), 161–174. https://doi.org/10.36737/01230425.n43.2022.2641

Congreso de Colombia. (18 de mayo de 2018). [Decreto 804 de 1995, Art. 2]. *Por medio del cual se reglamenta la atención educativa para grupos étnicos.* https://www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=1377

Creswell, J. (2014). *Research design: qualitative, quantitative, and mixed methods approaches,* (4th ed.). SAGE Publications.

Cruz A, F. (2017). ELT policy interpretations and translations in rural. *Current Issues in Language Planning, 19* (4), 363-382.

Cruz, F. (2017). ELT policy interpretations and translations in rural. *Current Issues in Language Planning, 19* (4), 363-382.

DANE. (2022b). *Encuesta de Tecnologías de la Información y las Comunicaciones en Hogares (ENTIC Hogares).* https://www.dane.gov.co/index.php/estadisticas-por-tema/tecnologia-e-innovacion/tecnologias-de-la-informacion-y-las-comunicaciones-tic/encuesta-de-tecnologias-de-la-informacion-y-las-comunicaciones-en-hogares-entic-hogares

DANE. (2022a). *Información 2021.* https://www.dane.gov.co/index.php/estadisticas-por-tema/educacion/poblacion-escolarizada/educacion-formal

Díaz, A. y Rúa, J. (2016). ¿Qué hay en los Estándares básicos de competencia en lengua extranjera sobre formación cultural? *Lenguaje, 44*(2), 289-311. http://www.scielo.org.co/pdf/leng/v44n2/v44n2a07.pdf

El Espectador. (2022). *Colegios públicos vs colegios privados: crece la brecha de desempeño en Colombia*. https://www.elespectador.com/educacion/colegios-publicos-vs-colegios-privados-crece-la-brecha-de-desempeno-en-colombia/

Fandiño, Y. J. y Bermúdez, J.R. (2016a). Planificación y política lingüística en Colombia desde el plurilingüismo. *Revista de la Universidad de La Salle, 69*, 137-155. https://ciencia.lasalle.edu.co/ruls/vol2016/iss69/8/

Fandiño, Y. J. y Bermúdez, J.R. (2016b*). Bilingüismo, educación, política y formación docente: una propuesta para empoderar al profesor de lengua extranjera.* Panamericana Formas e Impresos S.A.

Ferreira, M. y Almeida, R. (2019). *Antropolíticas da educação*, (3ªed.). Képos.

Galeano, M. E. (2004). *Diseño de proyectos en la investigación cualitativa.* Fondo Editorial EAFIT.

Galindo, A. y Moreno, L. M. (2019). Educación bilingüe (español-inglés) en tres instituciones educativas públicas del Quindío, Colombia: estudio de caso. *Lenguaje*, *47*(2, Suppl. 1), 648-684. https://dx.doi.org/10.25100/lenguaje.v47i3.6906

Gallego, S., Acevedo, J., Polo, A. y Gómez, S. (2020). Políticas lingüísticas colombianas: aciertos y desaciertos. *Revista Innovación Digital y Desarrollo Sostenible, 1*(1), 68-83. https://doi.org/10.47185/27113760.v1n1.10

Garavito de Archila, C., y Azevedo, J. (2021). Alta incidencia del acto didáctico en la desmotivación por el aprendizaje del inglés, reconocida por profesores y estudiantes. *RHS-Revista Humanismo Y Sociedad*, *9*(2), e6/1–17. https://doi.org/10.22209/rhs.v9n2a06

Gaviria, N. (2022). *Por cada docente hay 25 estudiantes en el sector público y 16 en la educación privada*. https://www.larepublica.co/economia/por-cada-docente-hay-25-estudiantes-en-el-sector-publico-y-16-en-la-educacion-privada-3398282

Gómez, L. y Guerrero, C. (2018). Non-native English speaking teachers' sub-jectivities and Colombian language policies: A narrative study. *Profile: Issues in Teachers' Professional Development, 20*(2), 51-64. https://doi.org/10.15446/profile.v20n2.67720

Gómez, R. (2018). Educación en Colombia: tensiones de la educación privada vs la estatal. *Praxis Pedagógica*, *18*(22), 85-105. https://doi.org/10.26620/uniminuto.praxis.18.22.2018.85-105

Gómez, S., Valencia, A., Saldarriaga, J., Vélez, R. y Soto, J. (2022). Deserción escolar de niños y niñas en Colombia en tiempos de pandemia. *Telos: Revista de Estudios Interdisciplinarios en Ciencias Sociales, 24*(3), 628-642. https://doi.org/10.36390/telos243.11.

Guarín, A., Londoño, S., Medina, C., Parra, J., Posso, C. y Vélez, C. (2016). Estimating the effect of attending a public versus a private university in Colombia on academic achievement. *Borradores de Economía 968*, Banco de la República. https://doi.org/10.32468/be.968

Guarín, A., Medina, C. y Posso, C. (2018). Calidad, cobertura y costos ocultos de la educación secundaria pública y privada en Colombia. *Desarrollo y Sociedad, 81*, 61-114. https://dx.doi.org/10.13043/dys.81.2

Hurie, A. (2018). English for Peace? Coloniality, Neoliberal ideology, and Discursive Expansion in Colombia Bilingüe. *Íkala, 23*(2), 333-354. https://doi.org/10.17533/udea.ikala.v23n02a09

Izquierdo, M. (2018). Educación en contextos multiculturales: experiencia etnoeducativa e intercultural con población indígena del Resguardo Embera Chamí - Mistrató, Risaralda – Colombia. Zona Próxima, 29, 1-22

López, M., Posada, H. M. y Henao, E. A. (2015). Entorno institucional y calidad de la educación: un análisis exploratorio de los resultados de las pruebas estatales para los colegios públicos de la ciudad de Medellín. *Semestre Económico*, *17*(36), 39-68. https://doi.org/10.22395/seec.v17n36a2

López, S., Rodríguez, C., González, L. y Barriga, L. C. (2018). Infancias migrantes en Colombia: retos del derecho a la educación. *ojas ablas*, *16*, 10-26. https://doi.org/10.29151/hojasyhablas.n16a1

Mejía, S. (2016). ¿Vamos hacia una Colombia Bilingüe? Análisis de la brecha académica entre el sector público y privado en la educación del inglés. *Educ, 19*(2), 223-237. https://doi.org/10.5294/edu.2016.19.2.3

Méndez, P. y Clavijo, A. (2017). Teachers' identities under the magnifying glass in the EFL field: Crossing intellectual borders. *Colombian Applied Linguistics Journal, 19*(1), 7-10. https://doi.org/10.1448 3/calj.v19n1.11600

Méndez, P., Garzón, E., Noriega, R., Rodríguez, F. y Osorio, G. (2020). *English Teacher, subjetividad y enseñanza del inglés en Bogotá.* Universidad Distrital Francisco José de Caldas.

Miranda, I. (2021). Aproximación glotopolítica a las políticas de bilingüismo en Colombia. *Ingeniería Investigación y Desarrollo*, *20*(2), 8–19. https://doi.org/10.19053/1900771X.v20.n2.2020.13385

Montes, A. (2017). Calidad de la educación primaria en Colombia: conceptualizaciones y tendencias. *Escenarios, 15* (2) 70-81. https://doi.org/10.15665/esc.v15i2.1624

Moya, D., Moreno, N. y Núñez, V. (2018). Interculturality and language teaching in Colombia: The case of three Teacher Education Programs. *Signo y Pensamiento,* 37(73). https://doi.org/10.11144/Javeriana.syp37-73.iltc

Muñoz, L., y Saiz, M. (2022). El multiculturalismo y los desafíos de la educación en Colombia. *Oxímora. Revista Internacional de Ética y Política*, (21), 39–59. https://doi.org/10.1344/oxi.2022.i21.39439

Oses, A., Cabeza, O., Flórez, C. y Botero, D. (2022). *Educación intercultural crítica: alternativa para la construcción del posconflicto colombiano*. *Análisis, 54*(101), 1-25. https://doi.org/10.15332/21459169.7579

Pineda, Y. y Loaiza, Y. (2017). Un análisis del trayecto histórico del currículo en Colombia. Segunda mitad del siglo XX. *Revista de Investigaciones UCM, 17*(29), 150-167. http://dx.doi.org/10.22383/ri.v17i29.94

Quintana, Y. E. (2018). Calidad educativa y gestión escolar: una relación dinámica. *Educación y Educadores, 21*(2), 259-281. http://dx.doi.org/10.5294/edu.2018.21.2.5

Radinger, T., Echazarra, A., Guerrero, G. y Valenzuela, J.P. (2018). *OCDE Revisión de Recursos Escolares COLOMBIA.* https://www.oecd.org/education/school/OECD-Reviews-School-Resources-Summary-Colombia-Spanish.pdf

Restrepo, O.E., Restrepo, L.M. y Jaramillo, D.A. (2017). La formación: una apuesta por las pedagogías del encuentro. *Revista Latinoamericana de Estudios Educativos,* 13 (2), 83-100. https://www.redalyc.org/pdf/1341/134154501006.pdf

Roldán, A. y Peláez, O. A. (2017). Pertinencia de las políticas de enseñanza del inglés en una zona rural de Colombia: un estudio de caso en Antioquia. *Íkala, 22*(1), 121-139. https://doi.org/10.17533/udea.ikala.v22n01a08

Sarrazin, J. (2018). Crítica al Elogio de la Diversidad Cultural. *Signo y Pensamiento*, *37*(72). https://doi.org/10.11144/Javeriana.syp37-72.cedc

Silveira, P. (2016). ¿Qué hay de público y qué hay de privado en la educación? *Revista Colombiana de Educación,* (70), 201-219. http://www.scielo.org.co/pdf/rcde/n70/n70a10.pdf

Suárez, D. (2017). ¿Para qué el bilingüismo en Colombia? *Revista Brasileira de Educação de Jovens e Adultos, 5*(9), 7-24.

Torres, A. (2021b). Escenarios y aportes para una educación plural y democrática en la era de la inequidad. En J. A. Gómez, *Retos y desafíos de la virtualidad en la*

investigación posgradual en las ciencias sociales y humanidades en Iberoamérica Memorias II Encuentro Internacional de Educación y V Seminario Internacional de RIIFPE (pp. 158–159). Fundación Universitaria Juan N. Corpas y FEDICOR.

Torres, A. (2022a). English learning: pedagogical discourses, challenges and prospectives. *Universal Journal of Educational Research, 10*(3), 205–214. https://doi.org/10.13189/ujer.2022.100303

Torres, A. (2022b). *Discurso sobre la Enseñanza y el Aprendizaje del Inglés en Colombia: Diversidad, Pensamiento Crítico e Interculturalidad*. [Tesis doctoral, Universidad Santo Tomás]. Repositorio de tesis de la Universidad Santo Tomás. https://repository.usta.edu.co/handle/11634/45291

Castañeda, M. (2020). *El componente sociocultural en la formación de docentes de inglés de una IE. Metodología y propuesta de una estrategia de desarrollo profesional a partir de una comunidad de práctica* [Tesis doctoral, Universidad de la Salle]. Repositorio de tesis de la Universidad de la Salle. https://ciencia.lasalle.edu.co/doct_educacion_sociedad/36/

UNESCO. (2022). *Importantes esfuerzos de Colombia logran que cerca de 200.000 niños, niñas y jóvenes venezolanos tengan acceso al sistema educativo.* https://www.unesco.org/es/articles/importantes-esfuerzos-de-colombia-logran-que-cerca-de-200000-ninos-ninas-y-jovenes-venezolanos

Valencia, A. y Vega L. (2022). Caracterización del Programa Nacional de Bilingüismo en los últimos cinco años (un enfoque a las percepciones de los estudiantes) *Ingenio Libre, 10* (20), 1-22. https://doi.org/10.18041/2322-8415/ingelibre.2022.v10n20.9365

Viáfara, J. (2016a). Self-perceived Non-nativeness in Prospective English Teachers' Self-images. *Revista Brasileira de Linguística Aplicada, 16*(3), 461-491. https://doi.org/10.1590/1984-639820169760

Viáfara, J. (2016b). I'm Missing Somethingbour: (Non) Nativeness in Prospective Teachers as Spanish and English Speakers. *Colombian Applied Linguistics Journal, 18*(2), 11-24. https://doi.org/10.14483/calj.v18n2.9477

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