

# MENDIVE

REVISTA DE EDUCACIÓN

Translated from the original in Spanish

## From traditional learning to Flipped learning as a continuity of the educational process in the context of COVID-19

### Del aprendizaje tradicional al aprendizaje invertido como continuidad del proceso educativo en contexto de COVID-19

### Da aprendizagem tradicional à aprendizagem invertida como uma continuidade do processo educativo no contexto da COVID-19

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#### ABSTRACT

This health crisis that impacts the entire world has caused an enormous opportunity in teaching to rethink the way in which the teaching process is conceived and exercised, to reflect on where and how it is taught and to

improve both dimensions of educational practice when the presence will be resume. Many teachers and students had to relearn a new way of accessing knowledge and interacting in cyberspace. The objective of this work is to present the experience of using the inverted learning method in the continuity of the subject "Introduction to Computer Science II", taught to first-year students in Faculty 3 belonging to the University of Computer Sciences, in the current context of COVID-19. In this process, support spaces were generated for the students, didactic materials and other results were obtained, such as comprehensive attention to the educational needs of the group and of each student in particular.

**Key words:** flipped learning; tele training; university education.

#### RESUMEN

Esta crisis sanitaria que impacta al mundo entero ha provocado en la docencia una enorme oportunidad para repensar la forma en que se concibe y ejerce el proceso de enseñanza, para reflexionar sobre dónde y cómo se enseña y mejorar ambas dimensiones de la práctica educativa cuando se retome la presencialidad. Muchos docentes y estudiantes debieron reaprender una nueva manera de acceder al conocimiento y de interactuar en el ciberespacio. El objetivo de este trabajo es exponer la experiencia de utilización del método de aprendizaje invertido en la continuidad de la asignatura Introducción a las Ciencias Informáticas II, impartida a los estudiantes de primer año en la Facultad 3 pertenecientes a la Universidad de Ciencias Informáticas, en el actual contexto de COVID-19. En este proceso se generaron espacios de acompañamiento a los estudiantes, materiales didácticos y se obtuvieron otros resultados como la atención integral a las necesidades educativas del grupo y de cada estudiante en particular.

**Palabras clave:** aprendizaje invertido; educación universitaria; teleformación.

### RESUMO

Esta crise sanitária que afeta o mundo inteiro provocou no ensino uma enorme oportunidade de repensar a forma como o processo de ensino é concebido e exercido, de refletir sobre onde e como ensinar e de melhorar ambas as dimensões da prática educativa quando a presencialidade é retomada. Muitos professores e estudantes tiveram de reaprender uma nova forma de aceder ao conhecimento e de interagir no ciberespaço. O objectivo deste trabalho é expor a experiência da utilização do método de aprendizagem invertida na continuidade da disciplina Introdução à Informática II, ensinada aos alunos do primeiro ano da Faculdade 3 da Universidade de Informática, no contexto atual da COVID-19. Neste processo, foram gerados espaços de acompanhamento aos estudantes, materiais didáticos e obtidos outros resultados, tais como a atenção integral às necessidades educativas do grupo e de cada estudante em particular.

**Palavras-chave:** aprendizagem invertida; educação universitária; teleformação.

are educated on a kind of production line to streamline their standardized education. They are asked to sit in orderly rows, listen to what an "expert" says on a topic, and recall the information learned when facing an exam (Bergmann & Sams, 2014).

Under these teaching conditions, the first semester of the course was completed and the second semester began in February 2020. However, in the 2019-2020 academic years, this process was affected by COVID-19. The course Introduction to Computer Science II (ICI II) was being taught following the traditional face-to-face model until students, teachers and workers in general received the news of the suspension of face-to-face teaching activities on March 23, 2020; As of March 24, the transportation of all the internal personnel at the university to their provinces began. Although the closure of schools and universities was expected, the news took us by surprise, generating mixed feelings. Friday, March 20 the teaching process - education passed with the usual normal educational activities would be reviewed next week and on Monday 23 March everything were directed or changed. It was a sudden change from routine. It generated an emotional overload and the concern about how to finish the school year started.

## INTRODUCTION

In the classrooms of the University of Informatics Sciences, the typical scenario of a school day consists of the professor coming to the front, "exposing his class" and writing on the blackboard to impart the contents. He is the central figure in the learning model, while his students take notes and take homework with them at the end of the lesson. This is part of a traditional teacher-centered teaching model, reflective of the era in which it was designed: industrial revolution. Students

Given this complex context, the teachers began studying variants in order to continue the process teaching - education started. Teachers and the students go on to the simultaneous encounter in a given place and limited by space and time, to a meeting in a space and an extended time, facilitated by different digital technologies. Even the teachers most resistant to digital culture had to get involved in this learning process and technological appropriation.

Although the current health crisis has made it possible to demonstrate that universities can be temples of learning, it

has also shown the great challenges that the world has to continue educating its young people when these emergencies arise. In this scenario, the master class and the role of the teacher as a mere transmitter of content begins to falter, to give way to other types of methodologies in which the student becomes an active agent in their learning process.

The main teaching methodologies that have been introduced in higher education from the use of technology are the *e-learning*<sup>1</sup>, *blended learning*<sup>2</sup>, *flipped classroom*<sup>3</sup> and *mobile learning*<sup>4</sup> (Lucena *et al.*, 2019). All of them favor the active role of the student body and the self-regulation of learning. In this sense, ubiquity allows the educational material to be consulted at any time and place, so that each student adapts their learning pace according to their personal characteristics.

Among them, the *flipped classroom* (in their classroom inverted translation) has been consolidated as one of the main educational trends. Its origin took place in the United States at the hands of two teachers who began to record their classes on video as an educational reinforcement for their students (Bergmann & Sams, 2014). Following the viewing of the recordings being made by the student outside the school context, they realized that their students began to develop certain skills of independent learning and academic results improve. The dissemination of this experience has been vertiginous, since the beginning of the scientific production on flipped classroom in 2012, a multitude of experiences have emerged located in different points of the earth's geography (Lucena *et al.*, 2019).

In Flipper classroom there is a change in the role of the teacher, who is no longer the sole repository of knowledge and is now focused on supporting students. Although he is still the subject matter expert, the professor's social

presence is more important than the academic one. That is to say, he stops being the wise man of the place and becomes a counselor who is next to each student and not just in front of the class.

Moreover, in Flipper classroom, there is also a change in the role of the student, who is now responsible for their own learning because it must involve and be more aware of what you are doing.

In flipped learning, direct instruction takes place outside the classroom and face-to-face time is used to develop meaningful and personalized learning activities. It is about using content such as videos, *podcast*<sup>5</sup>, read the newspaper, the chapter of a book, a digital article, etc; any content in different formats as long as it is intentional and directed.

In such a system, methodologies also change, from passive to active. In the traditional face-to-face system, the teacher gives the class and the student takes notes, which makes the method passive. Instead, in flipped learning the student is involved and collaborates in the exchange of knowledge and information with other students and teachers. In this scheme, learning is multidirectional because it can be learned at anytime and anywhere through digital devices.

Lucena *et al.* (2019) carries out an investigation that highlights the benefits of the inverted learning approach. These benefits associated with the implementation of the flipped classroom are diverse, including highlights increasing student motivation (García, 2016; Sanchez, Ruiz & Sanchez, 2017), greater self-regulation of learning (Hernandez & Tecpan, 2017), development of teamwork competence (Iñigo Mendoza, 2015; Abío *et al.*, 2017) and improvement of academic results (Merla & Yáñez, 2016; Metaute, Villarreal, Vargas, Saker & bustamante, 2018).

The research concludes that the results in the studies analyzed verified other benefits associated with the flipped classroom, in line with what highlighted by several authors (Inigo Mendoza, 2015; García, 2016; Sánchez Rodríguez et al., 2017; Hernández & Tecpan, 2017; Abío et al., 2017): increased motivation, self-regulation, teamwork and academic performance.

Faced with the abrupt dilemma of stopping the teaching - educational process due to COVID-19 or continuing it in a novel way due to other variants, the teachers began to study. This work exposes the experience of the application of the inverted learning method, in this pandemic context, as a continuity of the educational process. Where the general objective of this work to present the experience of using the method of learning invested in the continuation of the course Introduction to Computer Science II, taught in the second semester of the students in belonging to the University of Informatics Sciences first year, Faculty 3, interrupted by the current COVID-19 crisis.

## MATERIALS AND METHODS

The method flipped classroom is learning systems in which the student must have studied the relevant subject in advance to face class by videos where different concepts are discussed. Then they attend to class to clarify doubts, relate, reinforce concepts and perform practical exercises. Therefore, the dynamics with respect to the more traditional methodology in which the teacher exposes the subject in class is reversed and later the student studies the content and performs exercises and homework as a complement to their study.

The success of this method obviously depends on the quality of the material

available on the Internet, and also on the appropriate organization of the face-to-face classes in which the teacher must detect the difficulties in the students' prior learning and use the appropriate resources to correct the errors of understanding that have occurred and, in short, guide the learning of a group of students that can be very large and heterogeneous, promoting student-teacher interaction and seeking personalized attention (Reyes Parra et al., 2018).

During the academic year 2019-2020, and due to the COVID -19, this method has been applied in the subject Introduction to Computer Science II. This belongs to the second semester of the first year of the Computer Science Engineering degree at the University of Computer Sciences. Table 1 shows a summary description of the Analytical Program of the subject.

**Table 1** - Summary description of the subject Introduction to Computer Science II, according to the analytical program of the subject

<b>General objectives</b>
Demonstrate the evolution of the solution to a certain low complexity professional problem in the development of a computer application or service, based on the structure and functions of the parts of the <i>Software</i> Industry and the <i>hardware</i> and <i>software</i> that have been used, to become familiar with the spheres of action and the modes of action of the Computer Science Engineer.
<b>Contents</b>
<b>Knowledge system:</b>
Introduction to the development of computer applications and services: The <i>Software</i> Industry. Components of the <i>Software</i> Industry. Production chain - specialization of a <i>Software</i> Industry. Computer application and computer service. <i>Software</i> development process and computer services. Classification of development processes. Role system in the <i>Software</i> Industry. Development processes vs. Roles of the <i>Software</i> Industry. Good practice professionals engineer: professional communication. Professional presentation design. Time management and control in <i>software</i> development projects. Professional communication, the Engineer's Notebook and computer tools aimed at controlling and monitoring project activities.

## Design

In order to meet the objectives of this work, it was proposed to carry out a quantitative, non-experimental, descriptive study, where the population was made up of first-year students of the Computer Science Engineering career. A sample of 84 students was selected, belonging to the three groups of classes that received classes from the same teacher, in the subject Introduction to Computer Science II. In this sample of students (see table 2), 50 were men (59, 5 %) and 34 women (40, 5 %).

**Table 2** - Composition of the study group

Grupo	Men		Women		Total	Age years (x±DE)
	#	%	#	%		
3102	19	61,2 %	12	38,8 %	31	19±1.5
3103	14	51,9 %	13	48,1 %	27	19±1.5
3104	17	65,4 %	9	34,6 %	26	19±1.5
Total	50	59,5 %	34	40,5 %	84	19±1.5

## Data collection instrument

Data collection was performed after 12 weeks of implementing of this method. A questionnaire was distributed *online*. The questionnaire used in this study to assess their perceptions of the flipped learning environment in the classroom was designed by Gilboy *et al.* (2015). The questionnaire consists of a Likert scale, an instrument with anonymous responses and each one with five items with the following options: strongly agree, agree, neutral, disagree or strongly disagree. This questionnaire presents a Cronbach's Alpha with a value of 0.71, an acceptable value for reliability according to George &

Mallery (2003). The questionnaire also included two open questions about the students' opinions about the work before and during the flipped class.

## Procedure

In the development of the experience we find a first obstacle, that of communication. Not all students had technology that allowed them to have an account on Telegram or WhatsApp. Therefore, the first step was to identify the means of communication with each of them. For this reason, groups were created on *Telegram, WhatsApp, Facebook* that allowed the exchange. In addition, fixed telephony was used to give guidance to two students who did not have the necessary technology to connect to the groups.

In table 3 we can see the use that students gave to the different social networks for exchange. Note that some students used various variants of communication.

**Table 3** - Student communication through the different social networks

Communication channel	Number of students
Facebook	80
Telegram	73
WhatsApp	fifty
Fixed Telephony only	two

As a second step, the schedule in which each of the activities would take place was established. Selected Monday morning to send the materials and orientations that they had to follow. On Friday morning for feedback from each of the activities and evening for the reception of the work and deliverables of each of the tasks (see table 4).

**Table 4** - Schedule of meetings and activities

Day	Activity
Monday 8:00 am-11:30am	Sending / Receiving of materials and guidelines
Wednesday 8:00 am-11:30am	Clarification of doubts
Friday from 8:00 am-11:30am	Group exchange on each of the activities
Friday 2:00 pm-4: 30 p m	Reception / Final reception of the deliverables by activity

As a third step , the students had to watch a video, read documents, see the presentations in *PowerPoint* with the guidelines of the subject, and study materials consulting different sources, to do the activities and deliverables corresponding and make use of spaces for clarification of doubts, debates and exchanges. Finally, send the deliverables to the teacher or carry out the evaluations according to the defined procedure.

This teaching methodology is based on the actions described below:

- Short video lectures on the subject. Through the visualization, interpretation and autonomous study of the video classes, the theoretical knowledge associated with the contents of the subjects of the corresponding topic is transmitted to the student, motivating them to reflection, facilitating the discovery of the relationships between various concepts and trying to form a critical mindset in them , where the student can self - regulate their learning, planning it, designing it and adapting it to their conditions and interests. This is not possible in face-to-face classes, in which for some students the teacher goes "very fast" explaining, and others may get bored by going "very slowly", being impossible that in a

face-to-face class the teacher adapts to the rhythm of each one of his students.

- Dating *online* discussion and problem solving. The classroom is the forum for direct interaction between students and teachers, dedicating themselves to the discussion and resolution of questions and doubts about problems previously known to the student. In this context, the classroom had to be replaced by digital platforms such as social networks (*Facebook, WhatsApp, Telegram, etc*). Not always, we are limited to solve without problems, but took the opportunity to frame them in context and to highlight relationships between different concepts. We have time to ask questions and present practical examples, thus reinforcing the basic concepts that they have seen outside of the classroom, in the videos.

### Evaluations

Different procedures are used to evaluate the student:

- a. The *tests* carried out throughout the course in a synchronized way with the completion of each of the themes of the subject.
- b. Evaluation of activities proposed in practices and seminars, based on active participation, practical exercises and / or questionnaires.
- c. Exam of practical exercises (problems) in which a series of practical problems are posed.

*Test* questionnaires. The questionnaire used in this study to assess their perceptions of the flipped learning environment in the classroom was designed by Gilboy *et al.* (2015). The questionnaire consists of a Likert scale,

an instrument with anonymous responses and each one with five items with the following options: strongly agree, agree, neutral, disagree or strongly disagree. Other questionnaires available to students on the platform are self-evaluable tests. A pool of questions has been created (210 in total) and questionnaires of 10 randomly chosen questions are automatically generated for each topic. The questions are multiple choices, presenting the students the different options also in random order.

### Problems

With them, it is a question of intensifying and deepening the knowledge of the subject matters. On the *web* platform, the student has problem relationships, most of them based on practical assumptions with data that are as realistic as possible. In addition, the student has access to the resolution of some of them.

With the aim of improving academic results in previous courses, the subject has a bank of learning objects, presentations, videos and other materials produced by the group of the subject.

These materials were shared with the students through the different communication channels. There are also 33 materials identified on *YouTube* that contain relevant information for the acquisition of the necessary skills.

The didactic strategy of the flipped classroom allows, among other elements, to take advantage of the time in the classroom to contextualize the theoretical concepts that have been previously independently reviewed by the students. It is important at this point to say that the face-to-face classes were mediated by technology due to social distancing.

### Technological platform used

The *PowerPoint* and *CAMTASIA Studio* applications have been used to make the *videos* and they can be found on *YouTube*. The Virtual Learning Environment used is MOODLE. The exchange platforms for face-to-face activities were *Facebook*, to a greater extent, followed by *Telegram* and *WhatsApp*.

The presentation of all the material through the *web* has been structured in themes, each containing the following sections:

- Audiovisual lessons (video classes).
- Lessons in pdf (text of the video classes).
- Questionnaires (self-assessment test).
- Chores.
- Problems (proposed and solved).

### RESULTS

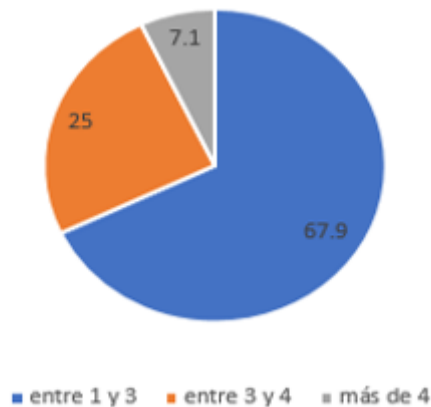
A descriptive analysis of the frequencies and percentages of the scores obtained by students after the completion of the questionnaire was done, the results being obtained in the table 5. In general, the results show that the perception of students about the activities carried out, using the flipped classroom method, is positive. Now, the analysis of each of the items.

**Table 5-** Descriptive analysis of the questionnaire on the flipped learning method

	n	Muy en desacuerdo		En desacuerdo		Neutral		De acuerdo		Muy de acuerdo	
		Σ	±	Σ	±	Σ	±	Σ	±	Σ	±
Me gustó la posibilidad de ver un vídeo en vez de tener una clase tradicional (conferencia) de los temas del curso	84	0	0.0	2	2.4	12	14.3	15	17.9	55	65.5
Prefero tener la clase tradicional (conferencia) del profesor en vez de realizar trabajos activos y grupales en clases como los que se llevaron a cabo con el método aprendizaje invertido	84	30	35.7	42	50.0	10	11.9	2	2.4	0	0.0
El uso de vídeos me permite aprender el material de estudio más eficazmente que hacer las lecturas en solitario	84	0	0.0	1	1.2	2	2.4	11	13.1	70	83.3
Yo aprendí más cuando utilicé el método de aprendizaje aprendizaje invertido (vídeos, lecturas cortas y actividades de aprendizaje activo en clase) en comparación con el método tradicional (exposición del profesor).	84	1	1.2	1	1.2	1	1.2	10	11.9	71	84.5

**About work at home**

Although since the beginning of the isolation of the pandemic emphasized that they should dedicate to autonomous work four hours a week, only the 2 5 % say they have spent between three and four hours a week to the study of the subject. The 67.9 % has dedicated between one and three hours per week, and 7.1 % over four hours (graph 1).



**Graph. 1** - Time of self - study

**Assessment of the flipped classroom method**

The 83.3 % raises to be "agree" or "strongly agree" with the possibility of seeing a video instead of having a traditional class to understand the concepts . The 84.5 % say they "agree"

or "strongly agree" that encourages self - learning method.

A percentage of 96.4 % prefer, in general, the flipped classroom method over traditional lectures. When asking about the main advantages and disadvantages of the flipped classroom method, it is observed that students appreciate the advantage of being able to access the videos online at any time, and as many times as necessary, repeating the viewing of the parts of greatest difficulty; especially the views favorably rotate depending on the facilities provided and to continue studies in times of crisis like we are living.

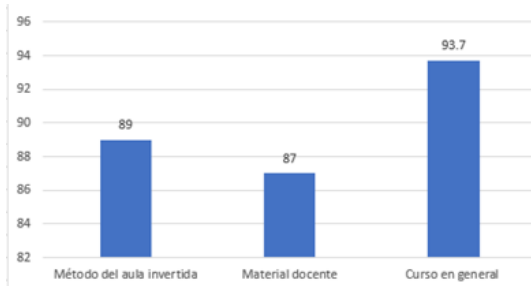
**Assessment of the materials and technologies available on the online platform**

The most used and best valued resources have been the videos (96.4 % agree "Agree" or "Strongly agree" that it allows them to learn study material more effectively than doing the readings alone and 91 % consider them very useful) , followed by a test of self evaluation, where 80 % is "OK" or "Strongly agree" in which they have used much or enough , and have been valued as useful by 77 %.

**Evaluation of the course in general**

The percentage of students who indicate a degree of satisfaction in "Agree" or "Strongly agree" with the flipped classroom method is 89 %; 87 % with teaching material and 93.7 % with the course in general. (See graph 2)





**Graph. 2** - Rating course

### **Assessment of the level of knowledge achieved**

To evaluate the level of knowledge obtained, a comparison was made of the results of the students in this study with the results obtained by the students of the previous year. Regarding the results of the type of questions that were incorporated into the knowledge test, it was found that there were differences in the acquisition of conceptual learning, but the more complex questions (analysis) were answered correctly by 15% more than the others.

With respect to the comparison of grades with students from the previous year, a positive trend (+1.2 points difference) is observed, equivalent to a 22% increase in grades. When comparing the grades obtained by students with inverted learning approach and traditional learning, it was detected that students who normally obtain better grades, the use of this approach allows them to enhance their learning because it is seen that this group of students improves their grades more. Not this way the students who obtain the lowest grades, in which no variation is observed depending on the teaching method. In the application the learning invested decreases the percentage of students earning notes between 3 and 4, which could correspond to students increase their academic performance and, by applying learning invested could get higher grades.

Therefore, when approval and disapproval of the knowledge test among

students in the group which were applied compared the approach of learning and reversed to that of the previous year, observed difference statistically significant; In other words, through the use of the flipped learning approach, better learning results are obtained. In this case, it is evidenced in the mark of the knowledge test, in which most of the students manage to obtain more than the minimum mark for passing the evaluation.

These results could indicate that the increase in the frequency of grades 4 and 5 (that is, an increase in the quality of the result) would be favored, on the one hand, by the better preparation of the students when carrying out the activities prior to the classes and, on the other hand, to the active learning activities carried out in the classes, which allow students to be involved in the construction of their own knowledge. The greater participation and resolution of doubts can also influence, especially those students who normally do not ask questions and in these more personalized and active classes can answer the concerns. In this way, greater flexibility would be granted to teaching, the interaction time of the teacher with the student would be optimized and the autonomous work of the students would be strengthened; for which this approach could favor reversed the increase of the academic performance of students compared to traditional classes.

### **DISCUSSION**

The inverted learning method can be the alternative to comply with all methodological principles, which truly serves to develop skills in students. Indeed, there have been many investigations that reinforce the experience presented in this work. The experience developed allowed to give continuity to the subject Introduction to

Computer Science II, in this particular context.

Furthermore, the degree of satisfaction of university students with the inverted learning method was observed, offering results similar to those obtained and referenced

by Opazo *et al.* (2016). Reasonably, the development of this experience has turned out to be very positive, both in the learning process and in the acceptance by the students, the use of audiovisual resources being key for the learning process, which shows the need for the inclusion of this type of methods, as well as other Information and Communication Technologies for the teaching-learning process in university classrooms. On the part of the students, we have also seen a high acceptance and satisfaction, which indicates that it can be carried out and generalized in other subjects of the career, given its effectiveness and usefulness compared to the traditional and master class.

We must reflect on where we are going. Today's University is in need of educational revolutions promoted by its own teachers, which allow the student body more autonomous work to develop meaningful and personalized learning activities. This experience, driven by the isolation restrictions imposed by COVID - 19, is the basis for an evolution towards new ways of instructing students. This evolution does not happen from one day to the next, since it implies cultural changes, mentality and above all, leaving the comfort zone.

It has been shown that the role of the teacher is important, and this has been demonstrated in the answers given by the students when asked about the assimilation of content and how they deal with the subject at home.

Regarding the materials offered with this model, the viewing of videos stands out, which would lead us to think about educational implications within the

university environment. It is also true that the time required by teachers to prepare and / or prepare all the material, as well as organize and post it on the Virtual Platform, is expensive.

On the level of knowledge reached shows that questions that were answered correctly increased. This could mean that this approach improves student learning related to application and analysis.

Another aspect highlighted in the study is that a high percentage of student recognizes not devote the necessary time at home studying the documents and see the videos that teachers proposed to work at home. This can be given by the circumstances and haste with which it was worked in this method. From the first day, and in line with other studies related to the subject (Palomares & Cebrián, 2016), it is recommended that students know what is committed with this methodology. By doing it as described above, the results have not been entirely positive in this regard. This may be due to the material used, since for many authors such as O'Flaherty & Phillips (2015), if the material used lacks interactivity, the students will not participate in the tasks they are sent to do at home, something they do think and rethink this method, prevailing the treatment of written documents that could have been replaced by deferred lectures on the subject to be discussed in the classroom. Do not forget you need to focus, not in the material that is prepared for individual work at home, but it should not neglect the organization and development of activities and tasks to do in the university classroom.

The results encourage us to continue working in this direction and confirm that the method of the flipped classroom is useful for students, respect their pace of learning and motivation awakened by the study. Among some of the novel aspects that this research contributes, we highlight that we achieve an active, participatory and inclusive university

classroom, adapted to all the students and that turns a theoretical subject into another more practical and motivating one in the specific field of engineering studies in Computer Science. Regarding all the elements, it must be said that the method provided a novel, useful, inclusive and participatory variant to give continuity to the teaching - educational process abruptly interrupted by the COVID - 19 pandemic.

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**Conflict of interest:**

Authors declare not to have any conflicts of interest.

**Authors' Contribution:**

*Leodanny Wuilber Polanco Garay:* Conception of the idea, authorship coordinator, general advice on the topic addressed, literature search and review, translation of terms or information obtained, preparation of instruments, application of instruments, compilation of information resulting from the instruments applied, statistical analysis, preparation of tables, graphs and images, preparation of the database, writing of the original (first version), review of the applied bibliographic standard, review and final version of the article, correction of the article.

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<sup>1</sup>Virtual teaching

<sup>2</sup>Combination of face-to-face education with virtual education

<sup>3</sup>Flipped classroom

<sup>4</sup>Mobile e-learning

<sup>5</sup>Radio or television broadcast that a user can download from the Internet through a previous subscription and listen to it both on a computer and on a portable player.



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