Flipped Classroom for enhancing fluency in secondary students from a public school

Emili Alejandra Solórzano Alcívar
Carlos Humberto Chancay Cedeño
esolorzano8087@utm.edu.ec
carlos.chancay@utm.edu.ec
Universidad Técnica de Manabí

ABSTRACT

Flipped Classroom for enhancing fluency in secondary students from a public school

Modern pedagogy proposes constant changes in educational purposes and approaches based on the specific needs of students and individual learning styles. This condition separates traditional educational models from new innovative and creative models strengthened by the use of digital technologies and tools. The present investigation carries out a qualitative and quantitative analysis of the Flipped Classroom model, the benefits and procedures for its application from teaching as teaching strategies and from the student's point of view as a motivating model where he actively participates in the construction of knowledge and improvement of the academic performance as a result of its proper application.

Keywords: EDUCATIONAL APPROACHES; INNOVATIVE MODELS; KNOWLEDGE CONSTRUCTION

RESUMEN

Aula invertida para mejorar la fluidez en estudiantes de secundaria de una escuela pública

La pedagogía moderna propone cambios constantes en los propósitos y enfoques educativos basados en las necesidades específicas de los estudiantes y los estilos de aprendizaje individuales. Esta condición separa los modelos educativos tradicionales de los nuevos modelos innovadores y creativos fortalecidos por el uso de tecnologías y herramientas digitales. La presente investigación realiza un análisis cualitativo y cuantitativo del modelo Aula Invertida, los beneficios y procedimientos para su aplicación desde la enseñanza como estrategias didácticas y desde la mirada del estudiante como modelo motivador donde participa activamente en la construcción del conocimiento y mejora del rendimiento académico como resultado de su correcta aplicación.

Palabras clave: ENFOQUES EDUCATIVOS; MODELOS INNOVADORES; CONSTRUCCIÓN DEL CONOCIMIENTO

Introduction

Education in its constant dynamics and evolution is framed by different changes both from the pedagogical perspective in teaching and in the different styles of content assimilation in learning. This means that both the teacher and the student evolve and adapt to the new educational needs that are part of the global social processes and affectations. Currently these changes have a greater focus on the technological than on the pedagogical and create new methodological models to reach a greater understanding and acquisition of new knowledge. This phenomenon has been called the knowledge, information and digital age society (Tourón & Santiago, 2014).

There is no doubt that technology or the digital age has created new social, cultural and, above all, educational models, so education from school is not immune to these changes and new strategies and methodologies are emerging to understand this reality. This is how global education systems incorporate in all pedagogical models the use of digital tools as part of the classroom during and after teaching and learning processes (class hours), "technology has to be seen as a tool, not as

an outcome of learning" (Tourón & Santiago, 2014, p.24).

One of the big inconsistencies in education is that the school focuses excessively on teaching and not learning, and this is because traditional education is still part of the teachers' mentality in which the model of repetition and memorization of concepts continue to be taught in the classrooms. The teacher-centered teaching model does not guarantee that the student will understand information to build his own learning, On the contrary, this model limits creativity and the power of data or content analysis to generate verifiable knowledge and long-term sustainable learning.

To improve ambiguous educational models and consolidate adequate learning, it is necessary to understand that students learn differently and at different times, that is, it is not appropriate to teach the same content and expect identical results in all students. It is important to understand individual cognitive needs and promote in each student learning skills and styles so that they create their own environment and conditions necessary to learn.

Given this, the use of technological resources has created infinite possibilities to motivate formal and informal learning with open, flexible environments and, above all, accessible to students with tools

such as Web 2.0 and the use of electronic devices such as Smartphones (Trucker, 2012).

"The inverted classroom or Flipped Classroom is a teaching method whose main objective is for the student to assume a much more active role in their learning process than the one they had traditionally occupied" (Berenguer, 2016, p.1468). This modality allows students to analyze the theoretical concepts that the teacher provides them, compare this information to confirm or contrast data and authors and in this way promote the investigative ability to form learning. These concepts are then analyzed in class with the teacher to resolve doubts, raise debates and strengthen what has been learned. According to Esteve (2016) any job, if it is working and analyzing what it does well, what it does wrong and what remains to be done, it will be improved. If it only works and does not take stock of what it has done, it will always remain the same for many years to come. This view applies in different professional environments and especially in education, where the teacher must constantly evaluate learning based on class objectives, but erroneously standardize processes and ignore individual skills and abilities.

Flipped Classroom in educational terms is a modality of learning and semi-face teaching technique that organizes activities based on time, resources, materials and learning interest of the student inside and outside the classroom. The first authors to venture into this methodology were Lage, Platt, and Treglia (2000), who proposed a pedagogical model that reverses the traditional class order, in which the theories, concepts and opinions of a given subject took place exclusively within the classroom and expressed only by the teacher. Based on the disappointing results in the level of student learning, a model was developed with a digital perspective in the use of technological tools that allows students to analyze information autonomously and then through activities and case studies, share and consolidate knowl-

edge with other students.

According to Khe Foon Hew (2021), Flipped Classroom has become a popular strategy of work in secondary education with visible results in the learning environment of students, and these exceed three basic cognitive needs: autonomy by learning, the relationship of what is learned with the surrounding environment and the skills needed to apply what is learned. Students are motivated to apply or share what they have learned before starting a class and through this knowledge to solve problems or discuss topics during the class. Teachers who apply the Flipped Classroom have more time to feedback the class and can help students understand contents of a subject by connecting them to problems or situations in their own environment (Van Alten, 2019).

Given the above, it is relevant to argue about the benefits of the Flipped Classroom method in high school students who, despite its application in all disciplines of knowledge, is directed to learning a second language to strengthen communication skills. Learning a language leads to constant practice and remarkable interaction, so the Flipped Classroom model provides benefits as learning strategies for the most efficient use of time in the classroom and autonomously.

In the analysis and search of the literature on the benefits of this method, different advantages can be corroborated to promote learning, regardless of the exact process or strategy used by the teacher Zambrano (2017). This method allows to take advantage of the time during the class in the short and long term and the student is able to engage in the search for content and share opinions with others through different resources in a face-to-face or virtual way, being the student the protagonist of his own learning. The Flipped Classroom method develops actions in three phases, before, during and after class, which must be analyzed for greater understanding (Arraéz, 2018).

Before class, students learn at their

own pace, access information or material requested by the teacher and this allows them to come to class more prepared (García, 2019). Students become more motivated and engaged by receiving and sharing information and materials appropriate to their learning styles or based on their abilities. The teacher, for his part, accesses and creates material with the support of technological tools and websites, in addition, this material can be reused and/or adapted to other students or class according to their needs and cognitive interests.

The teacher must prepare the student for the activity to be carried out in person and especially in the activities that will motivate the students to expand their knowledge. Additionally, the teacher programs the type of technological resource appropriate to the content of the class, through videos, presentations, e-books, among others. It is important that the teacher sets objectives for the class and it is valid to use schemes such as Bloom's Taxonomy (1956) to develop thinking skills in the field of comprehension with verbs such as summarize, explain, and demonstrate.

During the class, students process new knowledge through activities such as debates, brainstorming, and presentations, among others, in which they can contrast, confirm, compare and even argue opinions or views to research by other authors. In these activities, students increase and consolidate their interaction with peers and with the teacher, transforming the classroom into a dynamic and flexible experience, promoting respect for and learning from diverse opinions (Cooperative Learning).

According to the Bloom Taxonomy (1956), when setting objectives during the class, it should seek the development of superior thinking skills that allow the student to create, analyze, evaluate and apply a new knowledge, all this with the support of objects or digital tools that facilitate their understanding.

Post-class benefits are directed towards individualized learning styles, in which students have more control over their own learning, developing comprehensive skills, analysis, synthesis and above all are able to argue on the basis of consolidated knowledge. This undoubtedly improves the academic performance of students.

However, implementing the Flipped Classroom model demands a process that is not so simple. For this, it is necessary to define and sequentially organize pedagogical strategies considering types of students, cognitive deficiencies, social, cultural and economic environment, which hinders or limits skills as well as their interests or learning preferences. The success of the Flipped Classroom method largely depends on this.

Methodology

The present article was based on a simple methodological design applied to qualitative and quantitative field research (mixed approach), where the information was taken from the primary source, that is, from the classroom where teachers gradually implement the Flipped Classroom method and from where their process and evaluation can be visible. For the development and substantiation of the research, relevant data were obtained from journals and websites duly indexed and supported to obtain greater documented veracity.

During the research process, techniques were used to collect data such as surveys, interviews with teachers and students, and classroom observations that allowed a deeper analysis of the Flipped Classroom educational model and the interaction that this model promotes between students, teachers, and contents of the classroom course. Through these instruments, the reflective process, expansion of ideas and strengthening of learning were evidenced.

In the analysis of the stages of the Flipped Classroom methodology, the subject of the English language was specifically considered, as this is one of the main

deficiencies in the educational sector, both in teachers and in students, according to data obtained by the Ministry of Education of Ecuador (2016), in which, through a national evaluation system, it was determined that the level of comprehension and production of knowledge in a second language is below the regional average in secondary education. For this, a holistic analysis was made using the logical inductive method for the analysis from the particular to the general that corresponds to learning in all its dynamics in students.

Additionally, a review of recent scientific articles was carried out with relevant results from the Google Academic database and in high-impact scientific journals such as Web of Knowledge, Scopus, and other indexed ones. These data provided a deeper insight into how the Flipped Classroom methodology has led to changes in the transition from traditional educational models to innovative models supported by technology.

Results

To obtain results, investigative works were considered in the five years, whose publications show the effectiveness of the Flipped Classroom methodology as well as the difficulties encountered during the process.

In his research, Vorgelegt (2020) applied the Flipped Classroom method in secondary high school students taking a population of 848 students who took this modality in a four-week course. The results indicated the effectiveness of Flipped Classroom in students by demonstrating greater participation and interaction in the classroom compared to traditional teaching models.

By his part, Bond (2020) recounts three important segments during the application of Flipped Classroom. First, Flipped Classroom must be applied in small groups of students in which the interaction is fluid. Second, Flipped Classroom must be directed by the teacher to

motivate research before and after class, in this way the classroom is intended for practice and reaffirm knowledge. During this practice, the teacher uses digital resources to share, reaffirm or contrast information that the students have previously investigated. Third, the student assumes the responsibility to continue the analysis of the information at home, to later share it through websites or e-Learning platforms.

The research work of Didem (2018) shows the effects of Flipped Classroom on motivation and learning to read. For this, it organized an experimental group with the traditional model and another group under the Flipped Classroom model, as a result, the traditional model was predictive and the students maintained the same level of understanding and analysis guided exclusively by the opinion of the teacher. On the other hand, the group directed by Flipped Classroom showed significant differences and visible progress in the analysis, interpretation of content and development of new learning.

Studies carried out in Ecuador such as Cantuña (2020), who mentions the educational evolution with new strategies and methodologies integrating ICT, and considers the inverted classroom or Flipped Classroom as an innovative model that merges the learning space at home with the face-to-face classes. It stands out that this Flipped Classroom model adapts to all subjects, with a greater impact on learning the English language for the development of linguistic skills.

Implementing pedagogical models in the teaching-learning of a second language is a necessity for both teachers and students (Paredes, 2020). For this, the Flipped Classroom model is a significant contribution to the development of English language grammar, especially because it encourages the use of technological tools and this allows the practice of the language in an interactive way and leaves aside the traditional, memorized approach that has been widely questioned.

Regarding the importance of learn-

ing through the Flipped Classroom methodology, Ponce (2021) highlights that a high percentage of teachers know active technological methodologies in the teaching-learning process, but not the efficient way. Thus, not applying a methodology in an organized manner discourages the development of language skills and discourages the practice of what is taught in class. Therefore, the Flipped Classroom strengthens the autonomous learning of students and facilitates collaborative work in the classroom.

Solis (2020) suggests that the use of the flipped classroom is an efficient strategy to develop critical thinking skills in different areas and/or disciplines. The results of the research were based on observation techniques and surveys and it was concluded that the Flipped Classroom contributes positively to the development of thinking skills to consolidate meaningful learning and improve the academic performance of students.

Additionally, to confirm information obtained from bibliographic research, interviews were applied to analyze learning styles and most useful teaching techniques in relation with Flipped Classroom methodology. Questions were focused in the following specific aspect:

1) I learn best when I listen to other people speak. Auditory

Table 1

Alternatives	Frequency	Percentage
Yes	35	74%
No	4	8.51%
Sometimes	8	17,02%
Total	**47**	**100%**

Source: Student survey
Made by: Emili Solórzano

As it can be observed in Table 1, the 74% of students mentioned they learn best when they listen to other people speak; it indicates a satisfactory result.

2) I remember best the things I read. Visual

Table 2

Alternatives	Frequency	Percentage
Yes	29	62%
No	8	17,02
Sometimes	10	21,28
Total	**47**	**100%**

Source: Student survey
Made by: Emili Solórzano

As it can be observed in Table 2, the 62% of students mentioned they remember best the things when they read; it indicates a satisfactory result.

3) I understand better when I see videos/filmstrips. Visual

Table 3

Alternatives	Frequency	Percentage
Yes	33	70%
No	5	10,64%
Sometimes	9	19,15
Total	**47**	**100%**

Source: Student survey
Made by: Emili Solórzano

As it can be observed in Table 3, the 70% of students mentioned they understand better when they see videos or filmstrips; it indicates a satisfactory result.

4) I remember best the things I hear. Auditory

Table 4

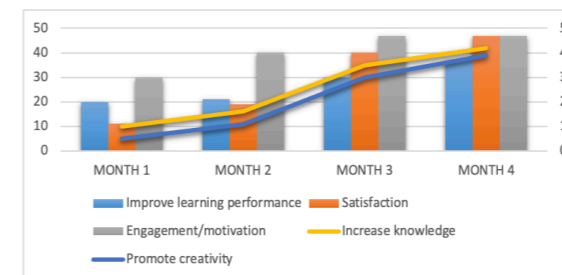| Alternatives	Frequency	Percentage
Yes	29	62%
No	7	14,89%
Sometimes	11	23,40
Total	**47**	**100%**

Source: Student survey
Made by: Emili Solórzano

As it can be observed in Table 5, the 64% of students mentioned they like to use charts and graphs; it indicates a satisfactory result.

Advantage of the Flipped Classroom applied in the High school
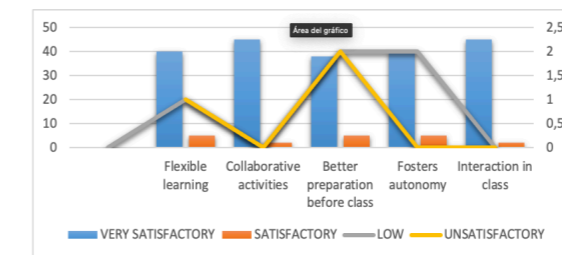
- Learners outcomes

Figure 1

Research applied by: Emili Solórzano

- Pedagogical advantages

Figure 2

Research applied by: Emili Solórzano

According to the study applied to 47 high school students where the Flipped Classroom strategy was implemented for 3 months with periods of 5 hours sessions per week, the progress of the students was determined as detailed in figure N°1, with satisfactory results. This opinion is shared by Elizabeth García, professor of the English area of the Institution, who accompanied the process and evidenced progress in improving English language skills, "It is a strategy that allows students to research and adapt information to their learning interests".

It is considered as a pedagogical opinion in the teaching of the English as a second language acquisition in Bachelor level to Rebeca Molina, who has several years applying the Flipped Classroom strategy in the teaching of English from elementary basic education and she says "the contribution of the Flipped Classroom strat-

egy to pedagogical innovation processes has produced promising results. Thus, traditional education remains in the past alongside memorization processes to open up new educational models in which students propose what they want to learn and why they want to learn for".

Discussion of results

Despite the benefits of Flipped Classroom, (Aguilera-Ruiz, 2017) mentions some inconveniences that could occur during its application in the classroom as the resistance that students can show and opt for the traditional method, this is a denial to their comfort zone. Additionally, Ruiz (2016) refers to the main need to apply this type of method, having adequate facilities and specialized equipment. To do this, the teacher must appropriate the pedagogical project and be motivated for its application, in addition to having some degree of communication skills to convince students, otherwise the method will not have optimal results.

One of the main difficulties in teaching-learning processes currently is to keep students motivated in the classroom, and the use of technological tools are valuable as long as the interaction and learning environment are adequate. Evidently, we live in a generation of digital natives whose learning is based on technological management and this condition has become a challenge for teachers. Shared opinion is of Pozuelo (2010) in which it establishes that the Flipped Classroom carries in a structural way the incorporation of ICT both in the application process and in the follow-up of the integral formation of the students.

Therefore, the use of Flipped Classroom must have structures and guidelines that motivate and commit students to its application; the method must be shown as an innovative strategy that promotes learning. As Torres (2019) mentions, the motivation is not only an inherent aspect of the didactic strategy, nonetheless the way the teacher feeds back actions and delayed learning in students. In this way, the

student is self-motivated to learn, discover and share information relevant to their interests and finally build a new knowledge.

The Flipped Classroom model applied to learning the English language in its different language skills is considered by Cedeño-Macías (2010) a successful way to innovate in education when planning academic activities, promotes autonomous learning of students and promotes meaningful knowledge outside the classroom through the various digital applications used and learned by the teacher. It also facilitates the development of skills and abilities to activate English language knowledge through the use of various interactive content.

Other authors such as Martínez (2018) argues that the lack of natural exposure and the poor management of technological tools in the classroom are the cause of a low level of the English language in both grammatical skills and contextualized vocabulary knowledge. In reference to the statement made by the author, opinion is shared on the importance of digital objects within the classroom to strengthen communication skills in which the Flipped Classroom model allows to interact having a prior knowledge assumed by students, it also taken by searching for information on web pages.

According to Paredes (2020) English language learning will depend on the teaching approach based on a model that involves the use of ICT for the development of a more interactive teaching didactics. The Flipped Classroom model is essential for learning a foreign language in which critical thinking and communication practices through technology guarantee an adequate proficiency level.

Conclusions

The Flipped Classroom model facilitates learning in students in all disciplines of knowledge, and its methodology is based on the transmission of information using technological tools such as digital devices before, during and after classes. These practices allow students to individually discover their own learning styles, improving academic performance and their interest in experimenting with new ways of learning.

The incorporation of the Flipped Classroom method favors teaching practice by changing the traditional view that the teacher is the center of attention in class for an innovative vision in which the student is the main actor of the teaching process-learning, with dynamic, flexible activities that adapt to the real needs of the educational environment in which the student coexists.

The practice of the English language through the Flipped Classroom method promotes voluntary participation and satisfies the communicative need of students in a second language, these aspects discard the traditional grammatical and translation approach in which memorization was considered a learning, for an innovative model with a communicative and constructivist approach, that is, that the student decides what to learn, how to learn and why to learn, building their own learning.

References

Aguilera-Ruiz, C. M.-L. (2017). El modelo Flipped Classroom. INFAD-Revista de Psicología, 261-266.

Arráez, G. L. (2018). La clase invertida en la educación superior . International Journal of Developmental and Educational Psychology, 155-162.

Berenguer, C. (2016). Utilidad del aula invertida o flipped classroom. En IV Jornada de Redes de Invetigación en Docencia Universitaria. (págs. 1466-1480). Alicante, España: Universitat d' Alicant.

Cantuña, A. &. (2020). Revisión sitemática del aula invertida en el Ecuador. Scielo, 2-7.

Cedeño-Macías, L. &. (2020). Flipped Classroom as a strategy for meaningful English language learning. Polo del Conocimiento, 565-584.

Cortés Góngora, L. &. (2019). El aula invertida como herramienta Tic para el aprendizaje de la asignatura de sistemas. Unipiloto.

Didem, A. &. (2018). Effect of Flipped Classroom Model on Academic Achievement. MOJET, 16.

Feria Llerena, K. (2019). Aplicación del modelo pedagógico Flipped Classroom . Arequipa: UNSA.

García, M. P. (2019). Flipped Classroom con alumnos de primero de magisterio. Revista de Docencia Universitaria, 89-106.

Khe Foon Hew, S. B. (2021). On the use of flipped classroom across various disciplines: Insights from a second-order meta-analysis. Australasian Journal of Educational Technology, 37.

Ortega, D. P. (2020). Un estudio sobre innovación educativa en la enseñanza en el Inglés. Polo del Conocimiento , 839.

Paredes, L. A. (2020). Flipped Classroom en el desarrollo gramatical del idioma Inglés. Quito: Repositorio Digital UCE.

Ponce, G. &. (2021). Metodología Flipped Classroom en el aprendizaje de las reglas ortográficas. Chimborazo: Repsitorio Digital UNACH.

Pozuelo, J. (2020). Educación y nuevas metodologías educativas: Flipped Classroom. Asociación Española de Semiótica, 681-701.

Ruiz, F. (2016). TIC en Educación Infantil: una propuesta formativa en la asignatura didáctica de las matemáticas basadas en el uso de la tecnología. Revista DIM, 1-18.

Solis, M. (2020). Estrategia didáctica Flipped Classroom para el desarrollo del pensamiento científico. Ecuador: UNAE.

Torres, C. (2019). Flipped Classroom: A story of professional life. Educación y Sociedad, 94-105.

Tourón, J., & Santiago, R. &. (2014). The flipped classroom. How to make the school a learning evironment. Barcelona: Digital-Text.

Trucker. (2012). The flipped clasroom. Education net, 82-83.

Van Alten, D. P. (2019). Effect of flipping the classroom on learning outcomes and satisfaction. Educational Research Review, 28.

Vorgelegt, M. W. (2020). Effectiveness of Flipped Classroom Instruction in Secundary Education . UNIVERSITAT PASSAU.

Zambrano Sánchez, C. &. (2017). Método aula ivertida en el nivel de la calidad de desarrollo del pensamiento creativo. Chone-Ecuador: Universidad de Guayaquil.