

Flipping the EFL classroom in a secondary education setting: Students' perceptions and academic performance

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Abstract: The flipped classroom teaching model has gained a lot of popularity lately. The core idea of this new approach is to switch the class sequence moving direct instruction out of the classroom by making students watch videos that explain the content before coming to class. This way in-class time is freed up to implement student-centred activities that engage students and enhance active learning. Despite its popularity, studies regarding the implementation of the flipped classroom focus mainly on fields that are strongly based on lecturing, such as science, technology and mathematics, and on university settings. This case study aims to contribute to research on the implementation of the flipped classroom by extending it to an EFL classroom in a Secondary Education setting. Results obtained in pre and post-tests and in questionnaires showed that the flipped classroom improved students' academic performance and this new teaching model was perceived positively by students.

Keywords: flipped classroom; EFL; secondary education; student-centred learning.

Resumen: Recientemente se ha popularizado un nuevo modelo de enseñanza denominado «flipped classroom» o clase invertida. Este nuevo modelo se basa en invertir la secuenciación de la clase desplazando la lección magistral fuera del aula por medio del visionado de videos en los que se explican los contenidos antes de acudir a clase. De esta manera el tiempo de clase se usa para realizar actividades más centradas en los alumnos que los involucren y que enfatizen el aprendizaje activo. A pesar de su popularidad, la investigación sobre la implementación de este modelo se ha centrado en campos basados en lecciones magistrales como ciencias, tecnología o matemáticas, y en contextos universitarios. Nuestro estudio intenta contribuir a la investigación sobre este modelo aplicándolo en una clase de inglés como lengua extranjera (ILE)-en Educación Secundaria. Los resultados obtenidos mostraron mejoras en conocimientos y percepciones positivas hacia su uso para esta asignatura y en este contexto.

Palabras clave: clase invertida; inglés como lengua extranjera; educación secundaria; aprendizaje centrado en el alumnado.

I. Introduction

The arrival of Information and Communication Technologies (ICT) has had a considerable impact on all aspects of society, including education. They have been used in the Foreign Language Teaching field since the 1960s (Prefume, 2015) and are extensively defended because of their benefits (Basal, 2015; Egbert, Herman & Lee, 2015; Lai & Kristonis, 2006).

The implementation of ICT in the English as a Foreign Language (EFL) classroom can be done in many different ways. One way of doing it is using blended learning models, which combine the use of the Internet with regular classroom environments, preserving the face-to-face interaction between learners and instructor.

Among the different types of blended learning models, the flipped classroom has gained a lot of popularity recently (Wong & Chu, 2014; Hao, 2016; Muldrow, 2013). The core idea of this teaching model is to move direct instruction out of the classrooms and to make students watch videos where the content will be explained before going to class. Thus, class time is freed up to do student-centred activities that focus on higher order thinking skills and that enhance students' motivation and content learning.

Despite its popularity as a teaching method, studies that analyse its implementation are generally related to disciplines such as science, technology and mathematics (Egbert, Herman & Lee, 2015; Hung, 2015), while there is scarce literature regarding the application of the flipped classroom to the EFL classroom.

This case study aims to fill this gap in research by analysing the implementation of the flipped classroom model in an EFL classroom at a Spanish secondary school. First, a general review of the literature regarding the topic will be presented. Then, the methodology of the study will be described and the results regarding students' academic results and perceptions will be disclosed and discussed. Finally, the limitations of the study and some pedagogical implications together with the conclusion obtained through the analysis of the gathered data will be presented.

II. Literature review

1. *Blended learning and the flipped classroom model*

The arrival of Information and Communication Technologies (ICT) has had a tangible impact on all aspects of society, including education. Based on the benefits it presents, the implementation of ICTs in the educational field in general

(Mazur, Brown & Jacobsen, 2015; Coelho, Galante & Pires, 2016), and in the Foreign Language Teaching (FLT) field in particular (Basal, 2015; Prefume, 2015; Egbert, Herman & Lee, 2015; Lai & Kristonis, 2006) has been extensively studied and defended.

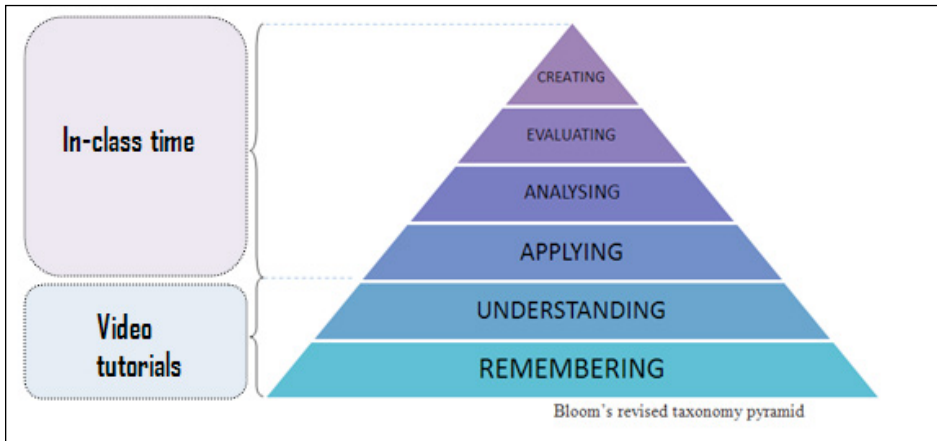
Blended learning integrates the use of the Internet into regular classroom environments while preserving the face-to-face interaction between learners and instructor (Tucker, 2012). This way, the benefits of computer assisted learning and face-to-face teaching are combined (Hsieh, Wu & Marek, 2016), and students' satisfaction tends to be higher in blended learning classes (Baepler, Walker & Driessen, 2014) compared to traditional teaching methodologies.

Blended learning has become popular in recent years (Ahmed, 2016) and, especially, one type of asynchronous blended learning called the flipped classroom, which is receiving increasing attention from scholars all over the world (Wong & Chu, 2014; Hao, 2016; Muldrow, 2013). The reason for its popularity could be due to the failure of former traditional teaching methods (Muldrow, 2013), where time constrains do not allow for a proper mastering of the content and students' needs cannot be addressed individually because of the amount of students per class.

The core idea of the flipped classroom is to invert the traditional class sequence of having the content lecture in class followed by homework at home. So in the flipped classroom the content is introduced watching video tutorials at home and in-class time is used to work on activities related to that content. Face-to-face time can be used for problem solving and hands-on activities in a student-centred environment, which is the basis of this teaching model (Basal, 2015; Muldrow, 2013; Bergman & Sams, 2012).

The flipped classroom is the basis of what Bergman & Sams (2014a) called flipped learning, which the Flipped Learning Network (<http://flippedlearning.org/>) defines as: «a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter».

In the flipped classroom, students work on what Bloom's revised taxonomy (Anderson & Krathwohl, 2011) calls the lower order thinking skills at home (Kvashnina & Martynko, 2016). Through the videos, students are able to understand and remember on their own, while the higher order thinking skills are developed in class. Therefore, in-class time activities should be designed to foster applying, analysing, evaluating and creating new knowledge.



2. *Benefits and challenges of the flipped classroom*

According to research, the flipped classroom teaching model can bring several benefits to the learners and the teaching process. By moving the lectures out of the classroom, in-class time is freed up to implement a student-centred teaching where the activities are more dynamic and interactive (Bergmann & Sams, 2012; Mazur, Brown & Jacobsen, 2015; Basal, 2015; Muldrow, 2013).

When the learning is student-centred, authentic learning experiences are built where students can collaborate with their peers and engage in a deeper way with the content (Bergmann & Sams, 2012). What is more, the role of the teacher changes and, instead of being a mere knowledge transmitter, teachers become guides and facilitators that develop meaningful relationships with their students and provide them with constant feedback (Bergmann & Sams, 2012; Mazur, Brown & Jacobsen, 2015; Basal, 2015).

In addition, the flipped classroom adapts to each student's learning styles and strategies and learning becomes more personalised (Cockrum, 2014; Mazur, Brown & Jacobsen, 2015). Learners can access the videos at any time they need and they can pause and rewind them if necessary. For that reason, they can learn at their own pace and the learning process adapts better to their individual needs (Kvashina & Martynko, 2016; Basal, 2015; Muldrow, 2013). What is more, the freed up in-class time allows the teacher to give struggling students ample attention and assessment because there is extra time to talk to them (Cockrum, 2014).

However, the flipped classroom does not only benefit struggling students. Higher ability students can take advantage of this learning model too, because it allows them to go deeper into their learning and they get more attention than in traditional models (Cockrum, 2014). Therefore, the flipped classroom allows the development of a better relationship between teachers and students, which can even reduce negative behaviours that affect classroom management. It also enables the enhancement of student-student interaction, as they help each other to learn instead of relying on the teacher as the unique holder of knowledge (Bergmann & Sams, 2012).

The flipped classroom also helps overcome some time limitations of present traditional teaching methods in which teachers cannot cover all the contents of the curriculum (Basal, 2015; Muldrow, 2013). Moreover, as students have to organise their learning at home, they become responsible for their own learning to some extent, and that trains their autonomous learning skills (Hao, 2016).

Researchers have spotted other several benefits of the flipped classroom such as increased participation in the classroom (Basal, 2015), students' preference towards this learning model (Barreras Gómez, 2016; Wong & Chu, 2014; Hao, 2016), students acquisition of more knowledge in terms of higher scores in tests (Wong & Chu, 2014; Egbert, Herman & Lee, 2015) or an increase in students motivation because they enjoy classroom activities (Wong & Chu, 2014).

Even though there is a considerable number of benefits related to the flipped classroom, the literature also points out a few challenges and limitations this model presents for both teachers and students.

On the one hand, the transition from a traditional to a flipped classroom requires quite significant adaptations not only for students, but also for teachers (Muldrow, 2013; Cockrum, 2014; Hao, 2016) as the success of the implementation of the flipped classroom lies on each teacher's commitment and ability to «flip» the classroom (Bull, Fester & Kjellstrom, 2012). It requires a lot of dedication from the teachers' side as, mostly at the beginning, it takes a lot of time to implement the teaching model and to prepare the video tutorials (Mazur, Brown & Jacobsen, 2015). Besides, teachers are required to have at least some minimum IT skills to be able to implement the flipped classroom (Kvashina, Martynko, 2016). As Cockrum (2014) notes, some teachers stay in traditional teaching models because it requires less energy.

On the other hand, not all the students may have access to the internet, and that can create inequity situations where not all the learners have the same learning opportunities (Mazur, Brown, Jacobsen, 2015; Hao, 2016). In some cases, students may also prefer traditional face-to-face lectures rather than video instruction (Toto & Nguyen, 2009). The reason for that could be that they can

find it confusing at first (Basal, 2015) or that they may not want to conduct the previews before coming to class (Hao, 2016). Furthermore, as the instruction happens at home, students cannot address the doubts that come to their minds while they are watching the videos. That is why Bergmann and Sams (2012) recommend to start the lessons by revising the video content and to encourage students to take notes while they are watching the material at home.

3. *The flipped classroom in Foreign Language Teaching*

Research analysing the implementation of the flipped classroom teaching model has focused on scientific disciplines such as science, technology or mathematics, which have a big reliance on lecturing (Egbert, Herman & Lee, 2015; Hung, 2015), while studies focusing on the flipped classroom in foreign language teaching remain scarce with some noteworthy exceptions.

For example, Hao (2016) analysed learners' readiness to be switched to the flipped classroom model at a 7th grade EFL class in a Taiwanese middle school. This readiness involved dimensions such as learners' self-directed learning, technology self-efficacy, motivation for learners and in-class communication. The study concluded that students were ready to embrace this new learning model in terms of technology self-efficacy but that not all of them were efficient when it came to self-directed learning or in-class communication, maybe because they were used to teacher-centred classrooms.

Evseera and Solozhenko (2015) implemented the flipped classroom in an EFL class at a Russian technical university to test students' perceptions towards the model. The results showed that most of the students were satisfied with the new teaching model, although 15% of them claimed to have had difficulties with it, like problems with Internet access, lack of time for completing online assignments or difficulty with self-discipline to organise their work properly. However, almost all the students mentioned the advantage of having the materials available at any time and their academic performance showed improvements.

Kvashina and Martynko (2016) analysed students' perceptions towards the flipped classroom in an EFL class for engineers at a Russian university and carried out a case study to prove if learners with the new teaching model obtained better academic results. They identified several benefits of the flipped classroom: students' positive perceptions towards the new model because it allowed them to work at their own pace and left in-class time for more engaging and productive activities; a higher self-confidence in students with lower level of

English; better learning outcomes in the four skills; and an increase on learners' autonomous learning skills. Anyway, they also spotted various challenges such as the big amount of time required to choose the content that could be «flipped» from the syllabus and to create e-content.

Basal (2009) analysed students' perceptions towards the use of the flipped classroom in an EFL class at a university in Turkey. The flipped model was applied for two semesters and some problems were detected such as students not watching the videos or students complaining about the length of the videos. According to the learners' answers to an open questionnaire, the model had benefits such as allowing students to learn at their own pace, overcoming the limitations of class time and increasing learners' in-class participation.

Hung (2015) implemented the flipped classroom using a WebQuest active learning strategy in an EFL class at a Taiwanese university. She examined the possible impact of the flipped model on learners' academic performance, learning attitudes and participation levels. Students' in the experimental group proved to have improved more in oral and writing production compared to the control group. What is more, results showed that students in the flipped classroom teaching model engaged in deep learning and that learners had significant higher levels of satisfaction than those from the traditional classroom.

Ahmed (2016) investigated the effect of the flipped classroom on writing skills and students' attitudes towards flipping in an EFL class at a university in Saudi Arabia. The study results indicated that flipping had a positive effect in improving students' writing skills and that students showed a preference towards the new model because they felt more motivated and independent.

In conclusion, data from empirical studies on the implementation of the flipped classroom in EFL classrooms has proved its benefits. Overall, the results have been positive and encourage the application of the model as a possibility to overcome some of the limitations of traditional teaching models, such as time constraints or students' lack of motivation. Nevertheless, most of the studies available focus on the implementation of the flipped classroom in EFL classes at university level.

This study targets a different context and aims to increase the literature available regarding the implementation of the flipped classroom teaching model in EFL classrooms at a secondary education level. In order to do that, it analyses both the impact of the model on students' academic performance and their perceptions.

II. Methodology

1. *Research questions*

This study aims to answer the following questions:

- a) Is students' academic performance better in a flipped classroom teaching model than in a traditional one regarding grammar and vocabulary acquisition?
- b) What are students' perceptions towards the flipped classroom teaching model?

2. *Context*

The study was carried out at a public secondary school in Pamplona, which is in the north of Spain. The centre does not have any particular behavioural problems and students, in general, come from middle-class families. The school is part of what is called «model D», that is, an immersion programme whose language of instruction is Basque, except for the other language subjects that are Spanish and foreign languages, which are English and French.

The study was carried out in the academic year 2015-2016. There were around six or seven classes per each year of ESO (compulsory secondary education), and four to five groups per each of the two Baccalaureate years. The amount of students exceeded the centre's possibilities and so the technological resources available at the centre were limited. There were only fifteen laptops to be shared among all the ESO groups –not to mention that if somebody had taken them the previous hour, they were useless, as they had run out of battery. There were also two IT rooms with fifteen computers each. Considering that all ESO groups had an average of 20 students per class and that there was always one or two computers that did not work, it should be pointed out that the ICT resources at the centre were not the most suitable to implement a teaching model that relies so much on ICTs as the flipped classroom.

Students at the centre were taught the subject English three times a week and they had been learning the language for at least six years prior to entering the secondary school. The distribution of the English classroom and the dynamics of the classes were based in traditional teaching approaches. Students sat in rows individually or in pairs, and teachers worked through the student book's units, introducing grammar and vocabulary in sequences following the organization of the book.

Although there had been a switch towards more student-centred English lessons and teachers at the centre tried to reduce teachers' talk time to the minimum and to make students work as much as possible, there was still a considerable amount of time spent in direct instruction. In addition, the activities carried out in class followed the books' structure of introducing grammar/vocabulary and doing follow-up activities. When it came to student-student interaction, it was basically reduced to the time when they discussed about the answers to the activities and, in many occasions, they did not use English and tended to communicate in their L1.

English teachers at the centre admitted that the four skills were not worked equally in the classroom and that speaking was the one to which less time was devoted. The presence of ICT was not very common in class either, as the main use given to them was to play Internet videos or songs projected on the wall screen. Therefore, students were not used to working with ICT in their English classroom.

3. Implementation of the flipped classroom

The flipped classroom was implemented during four lessons in which the grammar and vocabulary from unit seven of Macmillan's 3rd of ESO *Pulse* textbook were taught. The Virtual Learning Platform Edmodo was chosen in order to set the video assignments. The platform allows the creation of online classes that students can join. And teachers can create assignments and quizzes with a deadline and add links to videos and exercises.

Besides that, videos were posted at Edpuzzle, an online tool that allows selecting videos from platforms such as Youtube or Vimeo and then editing them. Once they were uploaded to Edpuzzle, questions were added to the videos that appeared as students watched them, and that had to be answered to continue through the video. The platform allowed the teacher to check out if students had seen all the segments of the video and the answers given to the questions.

The links to the videos in Edpuzzle were placed within the assignments created in Edmodo. After watching the videos, students had to do a quiz in Edmodo related to the content of the video. The teacher was able to check out students' answers to the quizzes and the time when they had taken it.

With the aim of making students familiar with the platform, learners went to the IT room at the centre and created accounts in Edmodo and Edpuzzle in two in-class sessions. During those sessions, they were trained in the use of both

virtual platforms, and a list with all the learners' emails was created to improve the communication between them and the teacher.

Along with each new assignment, students received an email with screenshots and explanations of all the steps they had to follow to complete the activities previous to class, including video tutorials and online quizzes. They were encouraged to ask the teacher via email if they had any doubts or problems, and the assignments were set at least two days in advance, so that students had enough time to complete them before coming to class.

At the beginning of each class the teacher checked who had watched the videos and taken the quiz. After that, the content of the video was revised quickly using a PowerPoint. The remaining time of class was used to do student-centred activities in which they had to put in practice what they had learnt through the videos. Even though in-class time was mainly used to carry out hands-on activities, no active learning strategies in particular were implemented due to the limitations of the study.

4. *Participants*

Two groups of third of ESO were selected for the study, one of them was the control group and the other one the experimental group.

The control group had 21 students and the experimental group 19. All of them were 14-15 years old. Both groups had the same English teacher and did not present significant differences in their proficiency language level based on the previous tests they had taken.

The experimental group was taught using the flipped classroom model by the researcher. At the same time the control group was taught the same content by their usual teacher, using the traditional class sequence, that is, the content was taught in class and then, they had to do homework related to it.

5. *Data collecting instruments*

Pre- and post tests were used to measure students' language proficiency in both groups in terms of grammar and vocabulary in order to answer our first question about whether students' academic performance improved following a flipped classroom teaching model. The tests were adapted to match the content of the seventh unit of the book *Pulse of Macmillan* for third of ESO.

A perception questionnaire (see Annex 1) was created and administered after having implemented the new teaching model with the aim of answering the second question about students' perceptions towards the flipped classroom. The questionnaire had two parts, one with 14 Likert scale, and another with 5 open-ended questions.

The 15 Likert scale statements were divided in three categories: i) pre-class activities, with statements regarding the Virtual Learning Platform (VLP) and the videos students had to use; ii) in-class activities, regarding the activities carried out during the class time; and iii) the teaching model, with statements in relation to the flipped classroom.

In the open-ended questions, students were asked about the advantages and disadvantages of the flipped classroom and how to improve the videos and classroom activities.

6. *Procedure*

The pre-tests were carried out in both groups before the implementation of the flipped classroom in the experimental group. Two students were missing in the experimental group the day the pre-test was done. Therefore, results of 17 of the 19 students of the experimental group were analysed regarding the pre- and post-tests. After all the unit was taught in both groups, the post-tests were done. The time used for both tests was 55 minutes.

The questionnaire was answered by the 19 students of the experimental group the day after the post-test. Before doing the questionnaire, students were asked aloud about what they had been doing during the previous weeks and the difference between the traditional and the new teaching model. This way, they had the opportunity to reflect on the videos, the in-class activities and the flipped classroom in general before answering the questionnaire. Students were given the Basque version of the questionnaire so that they could understand it better.

7. *Data analysis*

The pre- and post-tests were scored out of ten and the results of both tests were gathered in two tables, one per group, and compared. The differences between the pre- and post-tests' scores were calculated for each student, as well as the average of improvements in both groups.

The SPSS software package was used to carry out a statistical analysis of the differences between the control and the experimental group. Four t-tests were carried out comparing i) the results of the pre-tests of both groups so that initial differences could be ruled out, ii) the results of the pre- and post-tests of the control group, iii) the results of the pre- and post-tests of the experimental group, and iv) the results of the post-tests of both groups.

The quantitative data obtained through the 14 first statements of the questionnaire were also gathered in a table. The total amount of students that answered each possible number was calculated for each question for the purpose of analysing students' general perceptions towards the flipped classroom.

Regarding the 5 open questions of the questionnaire, all the answers to each question were collated and analysed by grouping common observations.

IV. Results and discussion

1. Tests

As can be seen in Table 1, students in the experimental group presented higher scores and a bigger standard deviation in the pre-test (M=5.71, SD= 1.94) than students in the control group (M=5.21, SD=1.59). However, the difference was not statistically significant.

Regarding the post-test, students in the experimental group obtained higher scores and a lower standard deviation (M=7.72, SD= 1.52) than students in the control group (M=6.7, SD= 1.73).

There were no statistically significant differences between the marks in the pre-test and the marks in the post-tests of both groups, even though the difference between the post-test marks of the groups was close to being significant (t=1,943, sig= 0,60).

Table 1. Descriptive statistics pre- and post-test scores

		N	Mean	Standard deviation	Standard error mean
PRETEST	Exp. group	17	5.7171	1.93874	.47021
	Cont. group	21	5.2124	1.58742	.34640
POSTTEST	Exp. group	17	7.7253	1.51646	.36779
	Cont. group	21	6.7024	1.72594	.37663

It is also worth mentioning that the standard deviation in the experimental group reduced from the pre- to the post-test while it increased in the case of the control group.

As it can be observed in Table 2, the difference between the pre- and post-tests was very similar in both groups, but slightly higher in the experimental group (M=2.01, SD=1.22 vs. M=1.49, SD=1.16). The improvement was statistically significant in both the experimental group (t=6.765, sig=.000) and the control group (t=5.87, sig=.000).

Table 2. Statistically significant differences

Experimental group	Paired differences					t	df	Sig. (2-tailed)
	Mean	Standard deviation	Standard error mean	95% Confidence Interval of the Difference				
				Lower	Upper			
PRETEST - POSTTEST	-2,00824	1,22391	,29684	-2,63751	-1,37896	-6,765	16	,000

Control group	Paired differences					t	df	Sig. (2-tailed)
	Mean	Standard deviation	Standard error mean	95% Confidence Interval of the Difference				
				Lower	Upper			
PRETEST - POSTTEST	-1,49000	1,16331	,25385	-2,01953	-,96047	-5,870	20	,000

From these results and in order to answer the first research question of this study, which enquired about whether students' academic performance, regarding grammar and vocabulary acquisition, improved more when a flipped classroom teaching model was used, the answer should be that this new teaching model does not produce statistically significant better academics results. However, it should be pointed out that both groups had significantly higher scores from the pre- to the post-test, and thus, both groups improved with instruction. Furthermore, the experimental group had nearly statistically significantly higher scores, which seems to indicate the experimental group performed better.

This could suggest that the flipped classroom teaching model could be a bit more effective than the traditional approach, a finding which has already been

reported in previous studies (Evseera & Solozhenko, 2015; Kvashina & Martynko, 2016; Hung, 2015; Ahmed, 2016) which showed that students' academic performance improved after the implementation of the flipped classroom.

Furthermore, the lower standard deviation in the experimental group in comparison to that of the control group attest that academic results in the experimental group were more homogeneous than in the control group after the implementation of the flipped classroom. Therefore, the needs of struggling students seem to have been addressed more efficiently within the flipped classroom approach than in the traditional teaching model. This finding supports the results presented by previous research in the field (Kvashina & Martynko, 2016; Basal, 2015; Muldrow, 2013; Cockrum, 2014).

2. *Students' perceptions*

a) *Statements*

All the statements in the questionnaire, except the last one, were positive observations about the flipped classroom. As it can be seen in Table 3, most of the students answered «strongly agree» or «agree» to all the statements except to the last one, where most of the students selected «not sure».

Table 3. Number of students selecting each rating: 5 strongly agree and 1 strongly disagree

Answers	QUESTIONS													
	PRE-CLASS ASSIGNMENTS						CLASS ACTIVITIES			THE TEACHING MODEL				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
5	4	6	7	3	8	6	3	8	2	4	6	2	3	1
4	12	11	9	11	5	7	10	9	14	9	6	9	11	5
3	3	1	3	3	5	4	5	2	3	3	5	5	4	9
2	0	0	0	2	1	2	1	0	0	2	1	1	1	1
1	0	0	0	0	0	0	0	0	0	1	1	2	0	2

Regarding the statements related to pre-class assignments, almost all the learners strongly agreed (5 in Table 3) or agreed (4 in Table 3) with the three first statements 1) «using Edmodo was easy», 2) «in general, I think Edmodo is a good online platform to work with» and 3) «the videos were easy to understand». Only one to three students answered «not sure» (3 in Table 3).

Most students also strongly agreed (5 in Table 3) or agreed (4 in Table 3) with the next three statements 4) «the videos were nice. I did not get bored», 5) «I prefer doing activities online rather than in paper» and 6) «With the videos I understood the grammar/vocabulary more easily because I could watch them as many times as I wanted». However, three to four students answered «not sure» (3 in Table 3), and one or two chose «disagree» (2 in Table 3).

In relation to the statements about in-class activities, although most students agreed with 7) «I enjoyed the activities we did in class», five of them answered «not sure» and one «disagree». However, all the students apart from the two or three who answered «not sure», said that they agreed with statements 8) «I understood the instructions of the activities we had to do in class» and 9) «the activities we did in class were useful to practice what we had learnt with the videos».

Regarding the last five statements about the teaching model in general, more than half of the learners showed positive perceptions towards statements 10) «this teaching model helps me understand and learn the grammar and the vocabulary better», 11) «I prefer this teaching model rather than the traditional way of teaching», 12) «with this teaching model I feel more prepared for my exam» and 13) «with the flipped classroom, I had more opportunities to practice my English». Nevertheless, from three to five learners answered «not sure» and one or two did not agree with the statements.

When it came to the last statement 14) «with the flipped classroom we have to do more work out of the classroom», most students were «not sure», six agreed and the remaining three disagreed.

In conclusion, students' perceptions towards the flipped classroom were positive, mainly regarding the used LMS, the videos and in-class activities. This corroborates the results regarding the positive perceptions of students which have been documented by previous studies in the field (Evseera & Solozhenko, 2015; Kvashina & Martynko, 2016; Basal, 2009; Hung, 2015; Ahmed, 2016).

Some of the limitations pointed out by earlier studies were also identified, such as some students not being completely satisfied with the flipped classroom (Evseera & Solozhenko, 2015), mostly in terms of feelings of unpreparedness for the exam and because of the amount of work they had to do. Nevertheless, a majority of the students showed a preference towards the new learning model.

b) *Open questions*

Students identified several advantages of the flipped classroom. The most mentioned one was that they found lessons and homework funnier and more dynamic than in their usual teaching model. Learners also claimed to have learnt

more with the new teaching model, even in an unconscious way: «you learn the vocabulary even if you don't want to»; and to have had a better understanding of the content thanks to the videos.

Several students mentioned the benefits of having the material available online: «if you don't remember or understand something you can see the video again»; «we can do the exercises all the times we want». What is more, learners identified working with ICT as an advantage: «we learn using technology and playing». Some even had the impression of having done less work: «to do less work», or of not having homework at all: «we don't do homework».

One unexpected advantage of the flipped classroom identified by students and that seems to be worth considering by teachers is that they appreciated not having to carry the books all the way home: «you don't have to take the books home and if you come back home walking your backpack isn't that heavy».

Regarding disadvantages, some students pointed out having had difficulties using Edmodo at the beginning and with computers: «if your computer gets broken or if you don't have one you cannot learn and do the homework».

For some students, receiving instructions via videos implied not being able to ask the teacher about the doubts they might have: «if you have problems, you have to wait until the next day». What is more, many felt they could not prepare for the exam properly because they did not have the material printed: «when you have to study you don't have the exercises in paper to revise them».

In contrast to the students that had the perception of having done less work with the flipped classroom, others felt the amount of work to do at home was bigger: «there is more work to do at home».

When asked to compare the flipped classroom with what they usually did in class, students identified some of the already mentioned advantages and disadvantages. On the one hand, they said lessons were more interesting, fun and dynamic: «you don't get bored, it is more dynamic», «it isn't boring and time goes faster at class», and that exercises in the flipped classroom were like games. They also said that they learned more through the flipped classroom: «it is better because you understand the explanations better».

On the other hand, they emphasized that they were not able to ask when they had a doubt while they were watching the videos: «if you have a doubt at home you cannot ask it and you forget it for the next day». Some of them mentioned not feeling themselves prepared for the exam because they did not have the material in paper and one even said to prefer traditional lecturing: «I understand it better if they give me the explanations personally».

When they were asked about how video tutorials could improve, most of them said they were fine. However, two of them made reference to the questions that

appeared in the middle of the videos: «taking out the questions, they are not necessary» and «taking out what tells you when the question is going to appear. If you pay attention 5 seconds before the question appears, you know the right answer».

Other two students mentioned the quality of the audio and recommended to improve it: «with a better microphone», «the audio louder in the videos».

In relation to the last question about how classroom activities could improve, most students did not answer or said they were good. Two of them mentioned they would like to do more in-class competitions and games using online tools such as Kahoot- a learning platform that allows the creation of your own quizzes and competitions that students can play through different electronic devices. One of them mentioned that using the workbook more would be convenient and another missed having more explanations in class. Another student made reference to the groupings that were done to carry out different activities, and recommended they should be organised from the previous day.

From the answers to the questionnaire and in order to answer our second research question, which enquired about students' perceptions towards the flipped classroom teaching model, the answer should be that students showed general positive perceptions towards the flipped classroom, although some negative points were also mentioned.

The main benefits mentioned were three. Firstly, students showed increased motivation because they enjoyed in-class activities and they liked the incorporation of ICT to their learning, which supports the results of previous studies in the field (Ahmed, 2016; Wong & Chu, 2014).

Secondly, as it has been pointed out by the literature (Cockrum, 2014; Mazur, Brown & Jacobsen), learning became more personalised within the flipped classroom, and online videos available to be watched at any time enabled students to work at their own pace (Kvashina & Martynko, 2016; Basal, 2015; Muldrow, 2013).

Thirdly, students identified a new benefit of the flipped classroom related to the use of ICT. As the material was available online, they did not have to carry the English textbooks, and that made their backpacks lighter, which was appreciated. Therefore, it can be stated that the flipped classroom can even bring benefits to students' health.

Regarding disadvantages and limitations, findings also match those of previous literature stating that some students may prefer the traditional teaching model (Toto & Nguyen, 2009). As it can be deduced from their answers, students found Edmodo confusing at the beginning and did not feel prepared for the exam because they did not have the notes and the materials printed to study. However, the number of students reluctant to embrace the new teaching model was a minority.

Another limitation that was found and that supports available literature is the possible inequity situations the need of computers and Internet access may create (Mazur, Brown, & Jacobsen, 2015; Hao, 2016). Students showed their concern about not being able to access the videos and the exercises if they did not have a computer or in case they had Internet connection problems. Therefore, as Bergmann and Sams (2012) suggest, it might be convenient to provide students with the videos in DVDs or USBs and to give them access to school technology.

Students have also identified a limitation mentioned by Bergmann and Sams (2012), that they could not address doubts while they were watching videos at home. Students said that these doubts remained unanswered because they had forgotten about them by the time they arrived at class. Anyway, this could be avoided by using the beginning of the class to revise the video content and by encouraging students to take notes while they watch the videos (Bergmann & Sams, 2012).

In relation to students suggestions about changing or taking out questions that popped up while the videos were being watched, it seems convenient to maintain them so that students have an active participation as defended by Basal (2015). Students also recommended that videos should have a better audio quality. However, better recording equipment and video editing software have additional economical costs, as pointed out by Bergmann & Sams (2012).

Students suggested doing more games and competitions in class, such as those using Kahoot. Some also missed doing workbook activities and demanded more in-class explanations and setting groups for class activities in advance was suggested too. As Bergmann and Sams (2014b) and Cockrum (2014) state, the flipped classroom has to constantly be evaluated and modified. Being that so, all these suggestions serve to improve following implementations of the flipped classroom.

V. Limitations of the study

This study had several limitations, such as the limited sample of participants and the length of time the flipped classroom was implemented. Due to the short length of the study, students did not have time to get completely used to this new teaching approach. What is more, their age -14 or 15 years old- may have affected their readiness towards the flipped classrooms in terms of autonomous work, as many of them were not used to teachers giving them responsibility for their own learning.

A further limitation was the fact that class time activities had to be adapted to what students were learning at that time of the year –unit 7th of Macmillan's 3rd of ESO Pulse textbook. That is why active learning strategies such as project-based learning or inquiry-based learning could not be implemented.

VI. Pedagogical implications

The implementation of the flipped classroom was considered as very positive from the teacher's perspective. Students seemed motivated and enjoyed in-class activities and competitions. What is more, the freed up class time allowed a more student-centred teaching (Bergmann & Sams, 2012; Mazur, Brown & Jacobsen, 2015; Basal, 2015; Muldrow, 2013), which enabled building a better rapport with students.

As has been shown through the analysis of the questionnaires, students had positive perceptions towards the new teaching model in general. As a result, the class atmosphere was very good and students worked and participated in the activities when they were asked to. What is more, as most of the in-class time was used to carry out student-centred activities, the teacher's role was mainly to monitor and guide learners through the activities, which allowed providing students with constant feedback (Bergmann & Sams, 2012; Mazur, Brown & Jacobsen, 2015; Basal, 2015).

Although the teacher spent just five weeks with the students and taught only six lessons –two training and four implementing the flipped classroom–, it was enough to know students' personalities, needs and likes. Therefore, it could be said that this teaching model makes it possible to build positive relationships between teacher and students, as recommended by Bergmann and Sams (2014).

Nevertheless, there are some aspects that have to be considered. A few students did not watch the videos, even though each assignment was explained in class, an email was sent explaining all the steps that had to be followed and that there was a student in charge of reminding the rest of the class about what they had to do before the following class. This could be due to what Hao's (2016) research identified as not all the students being efficient when it comes to self-directed learning.

Another limitation spotted by Hao (2016) could also be found during the implementation of the flipped classroom. When asked to do activities that required oral interaction among them, students avoided speaking in English and switched to Spanish when possible. As the researcher states, this could be because they were used to more teacher-centred classrooms, where they do not get the chance to speak that much. Therefore, it seems convenient to train students to be more autonomous and not to be embarrassed when they have to speak in English.

Besides, what Prefume (2015) states could be proven, that, at the beginning, it takes a considerable amount of time to prepare the videos and to design the lessons. However, this was probably because the teacher was not used to working with these types of tools and it is possible that with practice the time spent preparing the online materials would be reduced.

However, even if some limitations were spotted and some aspects should be changed and improved, the experience was positive overall, and the teacher's perception of the flipped classroom was very good.

Nevertheless, all these above mentioned observations should be taken with caution as they are the result of personal and subjective impressions the teacher had through the lessons when the flipped classroom was implemented.

VII. Conclusion

From the analysis of the results of the study, it can be concluded that the flipped classroom had a positive impact both on academic performance and on motivation. Many of the advantages reported by previous studies such as more personalised learning, an increase on students' motivation and struggling students' needs being better addressed could be confirmed. In addition, new advantages such as the benefit of not having to carry books were identified.

Both the teacher's and students' perceptions towards the flipped classroom were positive, and even though there were some students that preferred traditional teaching methods, it was just a minority. Students' academic performance was also better once the flipped classroom was implemented.

Some of the negative aspects previously reported by research such as possible situations of inequality that the need to use computers may create and students not being able to address their doubts while they are watching the videos were also confirmed. Nevertheless, as literature has pointed out, the flipped classroom is a continuous process that needs reflection and change, so it seems that these limitations could be overcome, if the necessary elements are modified.

In conclusion, this study supports previous findings and encourages the application of the model as a possibility to overcome some of the limitations of traditional teaching models, such as time constraints or students' lack of motivation. This work also contributes to the growing body of literature regarding the implementation of the flipped classroom in an EFL classroom at secondary education level, a setting which has been largely ignored.

Due to the small number of participants and the short length of the study, further studies should focus on larger samples and longer periods of use to confirm these positive findings. Longitudinal studies which extend over a whole year might also contribute to clarify whether a longer use of this teaching model decreases the amount of disadvantages perceived and produces statistically significant differences regarding academic performance, which should also measure skills improvements and other aspects of language apart from grammar and vocabulary.

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Annex 1

Perception questionnaire

A) Pre-class activities

1. Using Edmodo was easy
2. In general, I think Edmodo is a good online platform to work with
3. The videos were easy to understand
4. The videos were nice. I did not get bored
5. I prefer doing activities online rather than in paper
6. With the videos I understood the grammar / vocabulary more easily because I could watch them as many times as I wanted

B) In-class activities

7. I enjoyed the activities we did in class
8. I understood the instructions of the activities we had to do in class
9. The activities we did in class were useful to practice what we had learnt with the videos

C) The teaching model

10. This teaching model helps me understand and learn the grammar and the vocabulary better
11. I prefer this teaching model rather than the traditional way of teaching
12. With this teaching model I feel more prepared for my exam
13. With the flipped classroom, I had more opportunities to practice my English
14. With the flipped classroom we have to do more work out of the classroom

D) Open-ended questions

15. What are the advantages of the flipped classroom model?
16. And the disadvantages?
17. How is the flipped classroom model different from what you usually do in class?
In which sense is it better? In which worse?
18. How do you think the video tutorials could improve?
19. How do you think the classroom activities could improve?

Possible answers	
Strongly agree	5
Agree	4
Not sure	3
Disagree	2
Strongly disagree	1