

PROJECT OF FLIPPED CLASSROOM'S INCORPORATION: AN EXPERIENCE BETWEEN PRIMARY SCHOOLS AND UNIVERSITY

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Abstract

Currently, learning is no longer an internal and individual activity to become a collective activity and network according to Siemens (2008) on the theory of connectivism that against the limitations of behaviorism, cognitivism and constructivism. Siemens (2008) proposes a revision of these models to promote new specific strategies to the digital age for teaching and learning, it focuses on how technology affects the way people live, the way we communicate and, above all, how to learn. This is implicit in the concept of Flipped Classroom model, which is presented as an alternative to the traditional model. Flipped Classroom is 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 (Flipped Learning Network; 2014) and the technology is entirely integrated in the learning and teaching process.

The project called "Project of Flipped Classroom's incorporation" that was born in order to implement and evaluate the Flipped Classroom model in Primary schools and Teacher Training in Higher education.

This study aims to identify the changes observed to incorporate Flipped Classroom in the five variables of the model of teaching: teaching strategies, learning strategies, content and materials, management of classroom and assessment.

To identify these changes, this research involves the participation of students and teachers of three Primary schools in Barcelona, students and Professors of Blanquerna Faculty of Psychology, Educational Sciences and Sports Sciences. (Ramon Llull University). All of them have answered a questionnaire and focus group.

The results show changes when teachers use Flipped Classroom model in their classes five variables of model of teaching. Teachers use more interactive strategies, students use more collaborative strategies, teachers promote independence study of their students and personalized learning, access to educational material is easier as students and evaluation is continuous (the objective is the process).

In addition, there are benefits in the relationship between teachers and their students and the acquisition of generic skills such as learning to learn.

In conclusion, Flipped Classroom is a model of the digital age adapted to the new needs, new ways to learn and how to communicate in Primary school as a Higher education. Therefore, we can promote new models of shared learning.

Keywords: *education technology, flipped classroom, blended learning*

1. Introduction

Nowadays, there are many studies that show the changes occurring in the educational world. Reports such as, Horizon Report (2013) that presents the trends in education of the 21st century and consequently the challenges that must be considered.

The focus of many of these challenges refers to new ways of learning needs and learners 21st century. This is a new paradigm that as stated by Siemens (2008) in his theory of connectivism, there is a need to review the actual models to enhance new teaching and learning strategies in order to meet the challenges of the digital age.

In this new age, it has been shown that students are digital natives (Prensky, 2001) and have new needs that have to be answered. Therefore, we must find new models of educational transformation that will fulfil the needs of these new generations. A new model like the Flipped Classroom (Bergmann &

Sams, 2012) where the strategies of teaching can be more interactive; learning strategies are implemented in environments of collaboration and creativity; content and materials are real and adapt to new digital formats; responsibility and classroom management can be shared with students and it is not only centralized. Moreover, a model where the teacher evaluation takes into account the progress of the student. In short, a model that breaks with the traditional model, as the Flipped Classroom does (Tourón et al, 2014).

The Flipped Classroom model also allows us to reverse the order of the Revised Bloom's Taxonomy (Lopez, 2002): students work independently lower order skills and then, in the classroom together with their colleagues working higher order skills. This allows students to carry out activities of analysis, evaluation and creativity.

Thus, our students will develop all the skills required in the 21st century under a personalized learning model (Adell & Castañeda, 2013).

The Flipped Classroom is a model that places the student at the centre of learning and the teacher becomes a facilitator and a guide of their students. In the Flipped Classroom, the time traditionally used in the classroom to explain the contents and bring the students to the fundamental ideas of each unit moving activities outside the classroom, students can access information and content provided by the teacher outside the classroom and in the classroom they develop activities and tasks from a collaborative work. On the one hand, teachers have more time in the classroom to work with students and to understand their needs and skills in order to adapt better and more personalized forms of learning. In addition, students have the opportunity to ask questions and solve problems with the guidance of their teachers and the help of their classmates in a collaborative work environment (Tourón et al, 2014).

In this regard, a study conducted in 2000 by Professor Glenn Platt of the University of Miami along with Professor Maureen Lage corroborates the Flipped Classroom is a method that is changing the traditional model of class and a methodology of educational innovation. As a result, if you move to the context in which the school was doomed to a very fast transformation, it highlights the need to observe, analyse and support for the system in general and teachers in particular can take advantage of all the knowledge of the best experiences, practices and results, and consequently check whether models like the Flipped Classroom enable innovative learning processes.

Therefore, the aim of this study is to identify the changes observed to incorporate Flipped Classroom in the five variables of the model of teaching: teaching strategies, learning strategies, content and materials, management of classroom and assessment.

In summary, the final objective of this study is to confirm that the Flipped Classroom model involves innovation in education field.

2. Methods

This research "Project of Flipped Classroom's incorporation" is based on action research that started in September 2014. In July 2015 this project will be evaluated with a view to improving and re-implement it throughout the year 2015/16.

The assessment is based on two types of instruments: questionnaires and focus groups. Questionnaires have replied to the students of the Faculty of Psychology, Education Sciences and Sport Blanquerna Ramon Llull University in Barcelona (Spain) the degree of teacher education and to the students of primary education. Focus groups have participated teachers and students of primary schools.

Specifically in this paper, we provide results of the data collected so far, referring to students of primary grade teacher with a sample of 36 students from different subjects from grade teacher in primary education have invested some its contents and who responded to the questionnaire addressed to them. Of these 72.2% are women, and 27, 28% are men. Their average age is 24 years.

The type of statistical analysis is done based on descriptive statistics and analysis of the questions in the questionnaire will be made based on the following dimensions:

- Flipped Classroom Model
- Changes in the educational model in relation to:
 - Content and materials used
 - Teaching and Learning Strategies
 - Classroom Management
 - Evaluation

These data will contrast with the results obtained only in one primary school Collaso and Gil of Barcelona (Spain). In this case, there is a sample of 39 children from the fifth year of primary education compresses aged between 9 and 11 years of which 16 are girls and 23 are boys.

3. Results and discussion

3.1. Changes in the educational model in relation to the content and materials used.

College students consider it very or fairly easy to find and access the materials that have provided self-learning with a percentage of 97.3% and primary school students consider a rate 82 , 1%

Regarding the pace of learning, college students with a percentage of 91.6% believe that online materials allow them to work at their pace, or rather, while among primary school students, the percentage of 87.1%

University students consider the material created have learned when they used the material created to work autonomously in a flipped classroom model and so manifested as 88.9% said they have learned a great deal or quite this material. On this issue related to the use, saying that primary school students believe they have learned quite a lot or 97.5%, although the students often find it difficult to work independently with the materials and 30 , 8% said they have had enough difficulties and even 12.8% state that has cost materials to understand. In fact the focus groups to primary students said that have thanked classmates or teacher when they had difficulties with self-learning.

3.2. Changes in the educational model in relation to strategies for teaching and learning

The various questions that refer to the teaching model, we noted that 88.7% of the students refer to the Flipped classroom foster collaborative work which 94.4% very or fairly valued the teacher becomes a guide learning rather than the person who supplies the content and 97.2% of college students surveyed highlight the active role of the student work with flipped classroom.

Students from elementary school consider that with Flipped classroom they work more with their peers by 85% and peers to help them resolve questions lot or quite a 82%. Also, the result of the question about participation in class, students of primary school believe that with flippedclassroom they have worked and participated more in class with a percentage of 94.8

Finally, college students valued fairly or very flipped classroom model that promotes independent working skills in 72.2%

3.3. Changes in the educational model in relation to classroom management

This dimension has been worked with college students who will be teachers in the future. The results emphasize some of the questions in table format

Table 1. classroom management when used according Flipped Clasrrom students

Questions	Nothing	Little	Fairly	Very
The Flipped Classroom allows better attend the diversity of the classroom	0%	13.9%	52.8%	33.3%
The Flipped Classroom activities are more interactive	0%	2.8%	27.8%	69.4%
Time management respects the different learning rates	2.8%	8.3%	55.6%	33.3%
There is more interaction with the teacher in the classroom	0%	11.1%	27.8%	61.1%
There is more interaction with classmates in the classroom	0%	11.1%	27.8%	61.1%

According to the results, there is a high percentage of students who consider Flipped Classroom greatly improves the interaction between students and between students and teachers and also are more interactive activities

However a high percentage of students (close to 50%) consider that the Flipped Classroom respects quite different learning rates and can better attend the different needs in the classroom.

3.4. Changes in the educational model in relation to the assessment

100% of students consider using a flipped classroom model evaluation is more than a test and believe the flipped classroom using other evaluative systems.

Table 2. Comparison between the results of college students and students of primary schools about the different assessment systems with Flipped Classroom

	College students				Students of primary			
	Nothing	Little	Fairly	Very	Nothing	Little	Fairly	very
Self assessment	2.8%	5.6%	36.1%	55.6%	38.5%	10.3%	30.8%	20.5%
Peer assessment	0%	2.8%	44.4%	52.8%	10.3%	74.4%	128%	2.6%

The results of college students are different of the results of students of primary. College students want to use evaluation systems such as self or peer assessment, however the primary school students the opposite.

Surely the reason of these results is because the university has more variety of students and subjects. Instead, school “Collaso i Gil” have less activities. When we have all data, it will be necessary to check all the results of the three primary schools.

3.5. The Flipped Classroom model: advantages and disadvantages.

The positive aspects of the Flipped Classroom according to college students are this model improve learning, is motivating and helpful to the student, more practical, and has a great future in schools, etc.

In relation to the negative aspect, the college students are concerned: universal access to technology, lack of self habits of work, not forget the diversity of students, the situation in that students do not work at home before going to class, the necessary involvement of families, increased the workload of the teacher, etc.

While the students of primary would emphasize their concern for the quality of the videos and understanding, as well as search media when watching them.

To compare the final assessment, it must be remembered that the question to students of primary was closed and the question to college students was open. Therefore, the students of primary assess Flipped classroom with an average of 9,03 and college students between good and very good.

4. Conclusions

The first conclusion is about Flipped classroom, because this model has the approval and support of university students and primary school students, though also highlights areas for improvement. This model is well adapted to students considered digital natives.

In the other dimensions studied, most of the responses also point to the Flipped Classroom is positively evaluated except the assessment where there are differences between answers of college students and students of primary.

Thus, this study corroborates the Flipped Classroom is an innovative educational model that involves changes in the five dimensions of teaching model and conforms to the needs of learning and communication with the limitations of the present study that some of the data are not yet collected at the moment.

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