



FLIPPED CLASSROOM TEACHERS' CONCEPTIONS IN PORTUGUESE HIGHER EDUCATION

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Abstract: *This study aims to characterize conceptions of flipped classroom. Results from a survey to 58 Portuguese Higher Education teachers evidenced that approximately half of respondents defined the flipped classroom as a model where 'lectures are recorded as videos for students to view outside of class time freeing up time in class to engage in discussions and problem solving'. This points to core characteristics of flipped classroom as video lectures, student-centred learning, collaborative learning in-class activities. This is in line with answers to the open-ended question.*

Key words: *Flipped classroom, teachers' conceptions, Higher Education, videos.*

Introduction

Higher Education (HE) pedagogic models has been undergone deep changes at the end of 20th century and beginning of 21st century, aiming a shift from teacher to students centred approaches. In addition to the evolution of the paradigms of science, in general, the social changes and the technological evolution also have come to have a great impact, not only on the nature and organization of the teaching, but on the teachers' work and culture. The evolution that took place during the 20th century and the pedagogical paradigm shift that placed the student at the centre of the educational process has now extended to HE as well. Although this is not a „new” change, its importance has been emphasized, particularly in the context of the implementation of the Bologna Process, in which the student assumes the main role, contributing to significant changes at the level of the construction of teacher identity in HE. The change also enhances HE to face contemporary challenges of the knowledge and information society and competitive and liberal economies. In fact, the development of communication technologies, which supports the current information society, relativizes the former central role of the teacher as the privileged source of knowledge and the main agent in its transmission.

Flipped classroom has been attracting growing interest and flipped teaching and learning practices have been developed as well as research on the subject. In fact, there is a growing body of research about flipped classroom that focuses on topics as the concept itself, practices, benefits or barriers that can be associated to the methods, among others. [1] in a systematic review about the topic evidenced the increased interest about it taking in account the number of researches produced that is always increasing. [2] also referred that the rate of academic publications concerned with flipped classrooms 'increased

substantially between 2011 and the end of 2015. This period started with two publications in 2011, followed by 16 publications in 2012, 76 publications in 2013, 136 publications in 2014, and 296 publications in 2015 (...) This is underscored in relation to higher education, where the proportion of those publications with ‘higher education’ in the title, keywords or abstract within the overall corpus is significant. In 2012, higher education publications represented 38% of the total number, while by 2015 they represented 73%. This indicates a particularly strong growth of interest in relation to higher education and suggests that higher education has come to dominate the scientific discourse around the flipped classroom phenomenon’.

But what is flipped classroom and how can be implemented? There are several definitions of flipped classroom, and as referred by [3] ‘despite the buzz around the flipped classroom as an exciting new topic in educational research, there is a lack of consensus on what exactly the flipped classroom is’.

A key idea is centred on the flipped concept. For instance, for [4] ‘inverting the classroom means that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa’.

In addition to the flipped concept, other definitions highlight the change in teacher and students’ roles from a teacher centred pedagogy to a learner centred and active pedagogy [5]. In this scope ‘the pedagogical approach is designed to switch the focus away from the instructor and toward the students, ‘the flipped classroom being conceptualized as an activating method for more student-oriented learning. In a certain way, one can say that flipped classroom fits the paradigm change that characterize contemporary education. This paradigm shift is characterized by a change of focus from a pedagogical model centred on teaching and teachers, on information giving, content driven to a lifelong pedagogical model, that focus on the student and on learning outcomes. This main is a justification for the increasing interest in the flipped classroom and how to implement it.

In line with the referred characteristics of the flipped classroom, another dimension is the change that may occur concerning the tasks carried out in and out of the class by the teacher and student roles. For instance, [6] defined classroom 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 this scope students complete pre-class work individually before class and engage in team work and collaborative learning activities during class. Several teaching and learning methods can be considered as problem solving, inquiry based learning, project based learning, cooperative methods, the focus of flipped classroom activities is on problem solving, collaboration, project-based learning, presentations and students evaluating their own learning.

There are also different conceptions that can include particular pedagogical activities implemented or resources used, in particular, that highlight the use of videos as a key resource. [3] referred that ‘the flipped classroom is a new pedagogical method, which employs asynchronous video lectures and practice problems as homework, and active, group-based problem solving activities in the classroom. It represents a unique combination of learning theories once thought to be incompatible—active, problem-based learning activities founded upon a constructivist ideology and instructional lectures derived from direct instruction methods founded upon behaviorist principles’.

The use of videos and technological resources are also mentioned in other definitions, for instance “the flipped classroom is a pedagogical model in which the typical lecture and



homework elements of a course are reversed Short video lectures are viewed by students at home before the class session, while in-class time is devoted to exercises, projects, or discussions” [7] or ‘in the flipped learning model, teachers shift direct learning out of the large group learning space and move it into the individual learning space, with the help of one of several technologies. Teachers record and narrate screencasts of work they do on their computer desktops, create videos of themselves teaching, or curate video lessons from internet sites [8].

The compulsory use of videos in flipped classroom is still a non-consensual topic. [9] developed a systematic review about the topic, updated in [1] who referred that ‘instructional videos (or other forms of multimedia materials) must be provided for students’ class preparation. For me, the use of preclass videos is a necessary element for flipped learning, although it is not the whole story. Merely asking students to read text-based materials on their own before class is not a method of flipping’. This is in line with other authors proposals, e.g. [3] or [10], that considered that videos can “closely mimic what students in a traditional setting would experience’. Also, [11] quoted a student that said „Sometimes I couldn’t get the meanings by reading alone. But the instructional videos helped me understand the overall meaning.”

However, a number of researchers have challenged the close association between flipped classroom. For example, [12] asserted that “qualifying instructional medium is unnecessary and unjustified” and flipped classroom can take place using pre-class text-based materials.

Methodology

This study aims to characterize conceptions of flipped classroom of Portuguese Higher Education teachers.

The survey was carried on in the scope of the Erasmus+ Erasmus+ project Developing Flipped Methods for Teaching and was conducted between May 2021 and January 2022. The questionnaire used was an adaptation of the Focus survey [13] and included closed and open ended questions about conceptions, practices and experiences of flipped classroom, reason to start flipping, as well as barriers, perceptions of benefits for teacher and students.

In this paper, data concerned conceptions of flipped learning are presented. Conceptions of flipped classroom were analysed through a multiple choice question and an open-ended question, were participants were asked to fine flipped classroom by their own words.

The multiple choice question addressed five definitions of flipped classroom, as:

- Students complete pre-class work individually before class and engage in team work and collaborative learning activities during class
- Lectures are recorded as videos for students to view outside of class time freeing up time in class to engage in discussions and problem solving
- The learning environment is designed to switch the focus away from the instructor and toward the students
- The homework and lectures are reversed. Recorded lectures are viewed outside of class time, and homework is completing during class time
- I've never heard of the flipped class’

The survey was advertised through Facebook and email sent to all teachers. A total of 58 Higher Education teachers completed the survey.

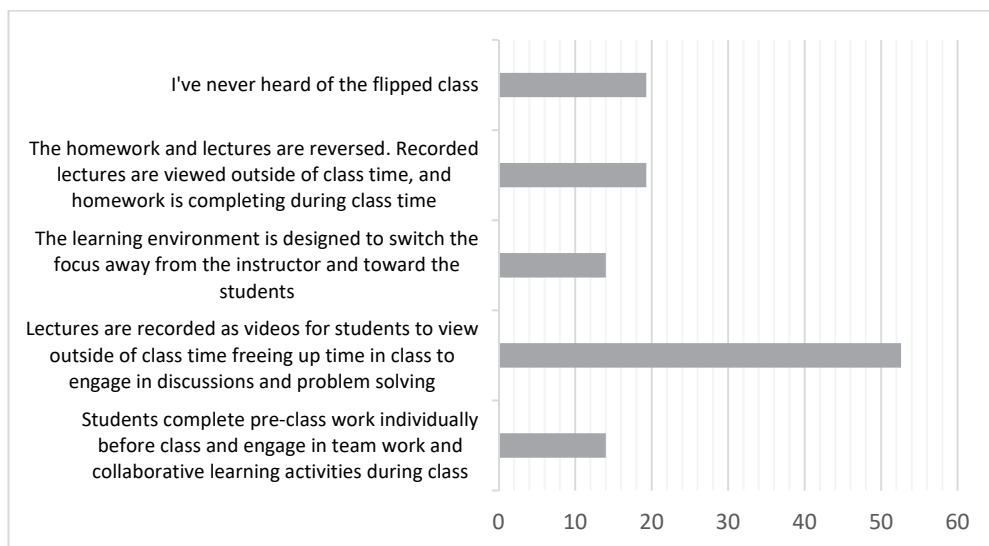
Results

Considering the question ‘Which of these definitions aligns with your interpretation of the flipped class? (Select all that apply)’, (Figure 1), approximately half of respondents defined the flipped classroom as a model where ‘Lectures are recorded as videos for students to view outside of class time freeing up time in class to engage in discussions and problem solving’ (52%).

The second and third most popular definitions were ‘The homework and lectures are reversed. Recorded lectures are viewed outside of class time, and homework is completed during class time’ (19%) and never heard of the flipped classroom.

The options ‘The learning environment is designed to switch the focus away from the instructor and toward the students’ (14%) and ‘Students complete pre-class work individually before class and engage in teamwork and collaborative learning activities during class’ (14%) are represented similarly.

Figure 1. Which of these definitions aligns with your interpretation of the flipped class?



The results diverged from the survey Flipped Classroom Trends: A Survey of College Faculty developed by [13]. In this report the most frequent statement was ‘Students complete pre-class work individually before class and engage in teamwork and collaborative learning activities during class’ (67%), while in the survey that is reported here this statement was referred only by 14%. Other conceptions of flipped class are referred in approx. similar frequencies in both surveys.

The results evidenced that participants in the research associated flipped learning with the use of technologies, in particular, recorded lectures or videos, while participants in the survey Flipped Classroom Trends highlight the flipped concept and other pedagogical approaches but not restricted to the use of technologies. These results are in line with research about, namely with [3], that also clearly associate flipped classroom with videos.

Answers to the open-ended question ‘In your own words, briefly describe some of the characteristics of flipped classes’ allowed a deep understanding of the participants’ conceptions, as each answer includes several characteristics of the flipped classroom. The



most frequent dimension was the flipped process, referred by almost all participants: what is usually done in class would be done previously, by the students, and the class time could be used for other tasks, namely discussions. There were some variations about how the flipped can be implemented, in fact: using videos but also printed texts, group work or other resources. There were also references to the processes involved, namely students' participation, engagement, motivation, as well as to the impact of using the method. In this scope some participants referred that the method promotes deep learning and autonomy. The change in general pedagogical approach was also referred by some participants: active method, student centred, change of teacher and student role; interactive.

This is in line with results previously obtained in [13] where, 'responses ranged from tactical specifics to more theoretical explanations of the practice. Recurrent themes among the responses included student-centered learning, collaborative learning, and higher-level learning. Video lectures, educational technology, and in-class activities also appeared frequently in the responses. However, since survey participants were asked to describe characteristics of flipping, most of the answers capture elements of flipping and do not, by and large, present comprehensive definitions. One answer described the practice of flipping without getting into the foundational rationale for the approach. (...) Others answers hinted at the motivation behind flipping rather than on how flipping creates a learner-centered classroom or what about it promotes higher-level learning. (...) Other descriptions and definitions of flipped classes included: „Professors create video lessons that students watch outside of class’.

Conclusions

Flipped classroom pedagogical approach has been gaining increasing interest by practitioners and researchers. In this paper the focus was on flipped classroom conceptions of Portuguese HE teachers. Previous research evidenced that flipped classroom is a broad concept that includes ideas as switching the focus of activities and teacher and student roles, but also, involves other pedagogical approaches and resources, in particular videos. Although the scope of flipped classroom has to be fixed, results from a survey on the topic points to a multifaceted concept with emphasise on the use of videos as a key resource.

Bibliography:

1. Lo, C.K. (2020). Systematic Reviews on Flipped Learning in Various Education Contexts. In: Zawacki-Richter, O., Kerres, M., Bedenlier, S., Bond, M., Buntins, K. (Eds) *Systematic Reviews in Educational Research* (pp 129-143). Springer VS, Wiesbaden. https://doi.org/10.1007/978-3-658-27602-7_8
2. Lundin, M., Bergviken Rensfeldt, A., Hillman, T., Lantz-Andersson, A., & Peterson, L. (2018). Higher education dominance and siloed knowledge: A systematic review of flipped classroom research. *International Journal of Educational Technology in Higher Education*, 15, article 20, pp 1-30
3. Bishop, J. L., & Verleger, M. A. (2013). *The flipped classroom: A survey of the research*. In 120th ASEE national conference and exposition, Atlanta, GA (paper ID 6219). Washington, DC: American Society for Engineering Education
4. Lage, M. J., Platt, G. J., & Treglia, M. (2000). Inverting the Classroom: A Gateway to Creating an Inclusive Learning Environment. *The Journal of Economic Education*, 31, 30-43. <http://dx.doi.org/10.2307/1183338>

5. Mason, G. S., Shuman, T. R., & Cook, K. E. (2013). Comparing the effectiveness of an inverted classroom to a traditional classroom in an upper-division engineering course. *IEEE Transactions on Education*, 56(4), 430–435. DOI: 10.1109/TE.2013.2249066
6. The Flipped Learning Network <https://flippedlearning.org/definition-of-flipped-learning/>
7. Educase Learning Initiative (2012). *7 things you should know about flipped classrooms*. Briefs, Case Studies, Papers, Reports. <https://library.educause.edu/resources/2012/2/7-things-you-should-know-about-flipped-classrooms>
8. Hamdan, N., McKnight, P., McKnight, K., & Arfstrom, K. (2013). *A Review of Flipped Learning: Flipped Learning Network*. http://www.flippedlearning.org/cms/lib07/VA01923112/Centricity/Domain/41/LitReview_FlippedLearning.pdf
9. Lo, C. K., & Hew, K. F. (2017). A Critical Review of Flipped Classroom Challenges in K-12 Education: Possible Solutions and Recommendations for Future Research. *Research and Practice in Technology Enhanced Learning*, 12, Article No. 4. <https://doi.org/10.1186/s41039-016-0044-2>
10. Love, B., Hodge, A., Corritore, C., & Ernst, D. C. (2015). Inquiry-based learning and the flipped classroom model. *PRIMUS*, 25(8), 745–762.
11. Wu, W. C. V., Chen Hsieh, J. S., & Yang J. C. (2017). Creating an online learning community in a flipped classroom to enhance EFL learners' oral proficiency. *Educational Technology & Society*, 20(2), 142–157.
12. He, W., Holton, A., Farkas, G., & Warschauer, M. (2016). The effects of flipped instruction on out-of-class study time, exam performance, and student perceptions. *Learning and Instruction*, 45, 61–71.
13. The Faculty Focus. Special Report. 2015. *Flipped Classroom Trends: A Survey of College Faculty*