



Erasmus+

Developing Flipped Methods for Teaching (DFM) –
Erasmus+ Strategic Partnership for Higher Education Project

RESEARCH REPORT

INITIATIVES OF TEACHING SOCIAL SCIENCE WITH FLIPPED CLASSROOM STRATEGY



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1. Introduction

One of the methods which received increased attention with the spread of internet is the flipped classroom method. The idea behind a flipped classroom design is that learners can receive the material for the next lesson, video or presentation, less often reading material before in-class educational activities. Learners process and interpret the material at home so that in-class activities can focus on clarification of the questions, or practicing exercises related to the new knowledge. This avoids the need for the teacher to engage in long explanations usually associated with passive student attention. There is more time for a more personal, interactive learning, using methods like panel discussions, case-based presentations, expert led discussions, team-based discussions, role -plays and student presentations, discussions and debates.

Research results indicate that when changing traditional methods to flipped classroom it is expected to improve student's performance (Borchardt & Bozer, 2017) and satisfaction (Albert & Beatty, 2014; Andreychik & Martinez, 2019; Baepler, Walker, & Driessen, 2014; Missildine, Fountain, Summers, & Gosselin, 2013). Flipped classroom methods increase student's motivation and their self-confidence (Thai, De Wever, & Valcke, 2017), their commitment to learn (Giannakos, Krogstie, & Chrisochoides, 2014; Gilboy, Heinerichs, & Pazzaglia, 2015; Tune, Sturek, & Basile, 2013).

Reviewing 28 studies on flipped classroom O'Flaherty & Phillips (2015) conclude that teachers does not really understand the role of Flipped Classroom steps or the relation between classroom and home activities. Students will be more motivated in doing the homework tasks if they receive feedback and they see the connection with classroom activities. Betihavas, Bridgman, Kornhaber, & Cross (2016) conclude in their review that students will be more motivated if they are explained the advantages and method of Flipped Classroom.

2. Research

To address the challenges of covering a course with flipped classroom materials six European institutes (as listed in authors' institutional affiliation) has joined their effort to develop materials for covering a course with flipped classroom materials. The purpose of the "Developing Flipped Methods for Teaching (DFM)" project¹ is to develop educational materials for teaching an entire course of introduction to psychology with a flipped classroom design, with translation to seven European languages. The project aims at overcoming the difficulties of elaborating multiple materials for teaching with flipped classroom design. Teachers from higher and secondary education institutes will have all the necessary materials for teaching the subject of psychology with flipped classroom methodology. The primary target group of the project are academic staff from the domain of psychology, who have a goal to improve their teaching skills and are open to use new technologies. A secondary target group is teachers from secondary education institutes specialized in psychology. Other target groups are pre-service university students from the domain of elementary school teaching, people who interact with children and have the goal to teach them social sciences, people working in adult education, students and people willing to learn social sciences.

In order to o gain a better understanding of higher education teachers' views on flipped learning (with a special attention on social sciences), a survey was conducted in the DFM project using an online questionnaire. The survey sought to find out who's flipping, who's not, and the barriers and benefits to those who flip.

The questionnaire used was developed as part of a previous study initiated by Faculty Focus (an online publication) in 2015 (used with permission) (Faculty Focus research report, 2015). The online questionnaire was translated by DFM project partners to local languages, in order to identify flipped classroom methods used by individual higher-education teachers across seven countries: Bulgaria (BG), Cyprus and Greece (CY+GR), Hungary (HU), Portugal (PT), Romania (RO) and Slovakia (SK). The questionnaire was promoted by calls of completion sent to the main higher education institutes of the seven countries, explaining the goal of the survey and where the data will be used. Subjects were recruited with accidental and snowball sampling - existing subjects were called to recruit more subjects into the sample, so the collected data are not representative for the included countries.

Subjects were asked to provide description of the flipped classroom methods used, including the source and nature of online activities used, difficulties they experienced, and recommendations for like-

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mindful teachers. In order to document insightful case stories, subjects were also asked if they have success stories to share. Data collection was conducted between September, 2021- March, 2022.

3. Results

The first question referred to knowledge about the flipped classroom method; number of scholars completing the questionnaire, as well as the percentage of academic staff not aware about this method is indicated in table 1.

Table 1. Number of subjects and percentage of persons knowing about the flipped classroom method.

Country	N	Yes	No	% No
BG	97	83	14	14
CY+GR	41	28	13	32
HU	69	36	33	48
PT	59	48	11	19
RO	118	38	79	67
SK	95	73	22	23
Total	479	306	172	36

There are significant differences between countries; in Romania, 79% of the 118 respondents have not heard of this method, whereas in Portugal 11% of the subjects have not heard about the flipped classroom method. One-way ANOVA was performed to study the effect of country on percentages of knowing about the flipped classroom method. Results revealed that there was a statistically significant difference in scholars knowing about the flipped methods between some of the groups ($F(5, 473)=24,563$, $p=0,000$). Tukey's HSD Test for multiple comparisons found that the mean value of exam score was significantly different between the countries listed in table 2.

Table 2. Differences between number of academics aware about the flipped class method (post-hoc test)

Countries		Mean Diff.	Sig.	95% C.I.	
HU	PT	,292*	0,002	0,08	0,51
HU	SK	,268*	0,001	0,07	0,46
HU	BG	,365*	0,000	0,17	0,56
HU	RO	-,191*	0,038	-0,38	-0,01
PT	RO	-,483*	0,000	-0,68	-0,29
SK	RO	-,459*	0,000	-0,63	-0,29
BG	RO	-,556*	0,000	-0,72	-0,39
RO	CY and GR	,401*	0,000	0,18	0,62

Before offering our own definition in the survey, respondents were asked to select from a list those descriptions that best align with their understanding and interpretation of the flipped learning model (multiple answers were allowed). Results are indicated in table 3.

Table 3. Which of these definitions aligns with your interpretation of the flipped class?

	BG	GR	PT	SK	HU	RO	Total
Students complete pre-class work individually before class and engage in team work and collaborative learning activities during class.	57%	24%	12%	70%	8%	18%	51%
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.	37%	17%	10%	33%	0%	20%	32%
The learning environment is designed to switch the focus away from the instructor and toward the students.	37%	18%	12%	34%	4%	7%	30%
The homework and lectures are reversed. Recorded lectures are viewed outside of class time, and homework is completing during class time.	37%	8%	39%	11%	17%	33%	39%

Prior to formulating the next question, we offered a definition to respondents: “A student-centered learning approach that involves reversing the design of the learning environment, allowing students to engage in activities, apply concepts, and focus on higher level learning outcomes during class time.” Then they were asked if they have ever flipped a class, or their intention to apply this method. Although some scholars were not familiar with the flipped classroom concept, after reading the definition provide in the survey, they indicated that in fact they were using the method before. Results are presented in table 4.

Table 4. Have you tried flipping an activity, class, period, or course? A – Yes; B - I tried it, but I do not plan to do it again; C - No, I don't intend to flip my class, D - No, but I plan to flip in the next year; E – A+B; F - E%

Country	N	A	B	C	D	E	F
BG	97	65	0	5	25	65	67,01%
CY+GR	41	28	4	9	41	32	78,05%
HU	69	9	10	10	7	19	27,54%
PT	59	32	3	8	16	35	59,32%
RO	118	23	3	3	10	26	22,03%
SK	95	38	2	24	23	40	42,11%

One-way ANOVA was performed to study the effect of country on percentages of persons who have tried the flipped classroom method. Results revealed that there was a statistically significant difference in academics knowing about the flipped methods between at two groups ($F(5, 351)=2.563$, $p=0,027$. Tukey's HSD Test for multiple comparisons found that the mean value of exam score was significantly different between Bulgaria and Slovakia ($p = 0.024$, 95% C.I. = [-0,43, -0.01])

Scholars who indicated they are not motivated to flip their class were asked their motivation for not interested in flipping. There were too small country-level groups to present detailed data, the totals are indicated in table 5.

Table 5. We'd like to know more in-formation about why you are not interested in flipping your class or what prevents you from flipping.

	Total	%
Not enough knowledge about flipping	17	3,5
It's a fad that will soon be replaced by the next new thing	9	1,9
Too time consuming	7	1,5
Uncomfortable with the approach	6	1,3
Limited experience with and/or knowledge about technology	2	,4
Lack of recognition and/or support	5	1,0
This type of work is not part of my position/role	2	,4
Total	48	10,0

Respondents who had experience in flipping their classes – even if they indicated an intention to not do it again – were asked details about the flipping experience: how would they rate the experience for them and their students? Total results are presented in tables 6 and 7.

Table 6. How would you rate the experience for you?

	Frequency	%
Positive	170	35,5
Neutral	28	5,8
Negative	13	2,7

Table 7. How would you rate the experience for your students?

	Frequency	Percent
Positive	154	32,2
Neutral	42	8,8
Negative	12	2,5

Respondents also indicated their degree of agreement regarding a range of possible effects on students when applying the flipped classroom method. The most indicated answers were that students become more engaged, and they are more collaborative (see table 8).

Table 8. Indicate the extent to which you agree or disagree with each of the following statements related to students in your flipped course(s) – percentages (Total: 479)

	Agree strongly	Agree somewhat	Disagree somewhat	Disagree strongly
They are more engaged	23,8	17,5	2,9	,2
They are comfortable using the technology	21,7	16,1	5,0	,2
They are more collaborative	17,5	21,5	4,6	,6
They ask more questions	17,3	19,6	5,4	1,0
They see the value of this type of experience	14,8	20,7	7,5	0,4
They build relationships/community	12,5	21,3	7,5	1,9
They adapt to the approach	11,5	26,5	5,6	0,4
Their grades are improving	10,2	25,7	7,5	0,4
They come to class prepared	9	23,2	10,4	0,6
They are resistant	3,3	14,6	17,3	8,1

Respondents were also asked about the perceived benefits they experienced in general when implementing FC methods. The survey offered participants 10 different choices and the option to select multiple answers. Most of the respondents indicated that flipping positively influenced student engagement, and teaching has become more student-centered (see table 9).

Table 9. What were the biggest benefits experienced from flipping? (check all that apply) (Total: 212)

Increased student engagement	75,47%
More learner-centered teaching	63,68%
Improved student learning	50,47%
Improved learning environment	51,42%
I know my students better	40,09%
I am more excited about teaching	20,75%
I look forward to class more often	10,85%
Re-energized a course	19,81%
I have been asked by colleagues to share what I am doing	4,25%
I have produced scholarship related to my flipped teaching	1,42%
I didn't realize any benefits	0,00%

4. Discussion

Although data collection was not representative, the similar methods of recruiting subjects in the surveyed countries makes possible some conclusion regarding country-level differences. First, although the 36% of scholars not knowing about the flipped classroom method can be considered relatively high, there are significant differences between countries (as indicated in table 2). Researchers from countries with low percentage of awareness of flipped methods among scholars working in higher education should consider working on local publications for raising awareness about this method. Moreover, negative experiences regarding the use of flipped methods should be specifically addressed in each country.

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