

Practical Experience of Applying the Flipping Learning Model in a Master Course at SEEU

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Abstract: *Flipped Learning Model (FLM) is a relatively new model of instruction and educators understandably desire evidence that it has a positive impact on student outcomes, including achievement and engagement. Looking for learning methodologies that enhance student activity in the class, FLM was applied in the master course Information Technology Project Management (ITPM) offered in the second cycle of studies, in the master Business Informatics program under Contemporary Sciences and Technologies Faculty at South East European University in Tetovo. In this paper is presented a literature review and a case study relevant to the research and related to the effectiveness of the Flipped Learning model in classroom management for ITPM master course. It was found that the student engagement and course results/grades increased, exceeding the actual professor expectations.*

Key words: *Flipping Learning Model, Classroom Management, HE, New Teaching Methods.*

INTRODUCTION

Changes in Higher Education (HE) are diverse and significant. Experts believe these changes range from technology and globalization to shifting students and professors' expectations. The key drivers towards implementation of these changes in HE are new learning models. The impact of any one of these drivers is significant and in total is transformative. Experts foresee that this "perfect storm" [8] requires transformation in HE practices to make a quality postsecondary education affordable, relevant, accessible, and desirable [5].

The traditional classroom has usually put the teacher on a pedestal. On the other hand, innovations in technology are enabling teachers to challenge this teacher-centered approach to education and put more emphasis on the students. These innovations not only allow us to educate more efficiently, but to shift the paradigms of old pedagogy towards digital technology. They allow us to think outside of the box and introduce new teaching methods into the classroom. One of these methods that is gaining in popularity is the flipped classroom. More and more, the teachers have been working to break the traditional lecture-centered instructional model by shifting the focus from the curriculum pacing guide to student learning needs as the driver of instruction. They are, increasingly, turning to an alternative model of instruction called Flipped Learning Model (FLM) in which digital technologies are used to transfer direct instruction outside of the classroom to an individual learning space, usually via videos. Offloading direct instruction in this way allows professors to reconsider how to maximize individual face-to-face time with students. Time becomes available for students to collaborate with peers on projects, engage more deeply with content, practice skills, and receive feedback on their progress [3]. Professors can devote more time to coaching their students, helping them develop procedural fluency if needed, and inspiring and assisting them with challenging projects that give them greater control over their own learning.

In respect of this, FLM was applied in the master course Information Technology Project Management (ITPM) offered in the second cycle of studies, Business Informatics program under Contemporary Sciences and Technologies Faculty at South East European University in Tetovo. In this paper is presented our experience in implementation of this new model of classroom instruction. The final results were promising.

LITERATURE REVIEW

Flipped teaching and learning is making further inroads in HE across the world every day as professors across the world discover and adopt it. For example, in the book called *Flip Your Classroom: Reach Every Student in Every Class Every Day* [2], the two professors, Jonathan Bergmann and Aaron Sams, reported that, after they flipped their

classroom, students began interacting more in class. Moreover, because time could be used more flexibly, students who were behind received more individual attention while advanced students continued to progress. In early 2012, Sams and Bergmann started the not-for-profit Flipped Learning Network™ (FLN) to provide educators with the knowledge, skills, and resources to successfully implement the Flipped Learning model. After flipping their math classrooms, the professors of Byron High School found that engagement increased and students began exceeding expectations.

Faculty at California State University, Los Angeles in 2008 flipped the freshman and sophomore Introduction to Digital Engineering course in order to increase opportunities for collaborative project-based learning. The shift was intended to address what was perceived to be the limited professor-student interaction and the prevalence of passive learning in engineering classrooms. In a post-course analysis, flipping the classroom seemed to be effective in helping students understand course material and develop design skills [7].

An online survey of 450 professors conducted in 2012 by the Flipped Learning Network in conjunction with *ClassroomWindow*, which is a tool for the K12 education industry, tapping into the collective experiences of teachers to learn what texts, tech and tools work and don't work in the classroom, found that professors associate Flipped Learning with improved student performance and attitudes, and increased job satisfaction [4].

There are many cases where the flipping classroom methodology experienced a success in its implementation. For example in a joint survey entitled "Growth in Flipped Learning: Transitioning the focus from professors to students for educational success," that was conducted by the Flipped Learning Network (FLN) and Sophia Learning in February 2014 and released in May 2014, the term "Flipped Learning" was recognized by 96% of professors, an increase from 74% two years prior when a similar study was conducted. The number of professors who indicated they had flipped a lesson during the school year went up from 48% in 2012 to 78% in 2014 [6].

As mentioned, there are many new initiatives in applying FLM, but, however more cases of success and more qualitative and quantitative research needs to be done to identify how the potential of the model can be maximized. The existing research clearly demonstrates that the FLM can be one way to create a classroom environment that is learner-centered. However the Flipped Learning model should by no means be thought of as a solution for solving all educational issues, rather, it might be an excellent tool especially in graduate courses.

APPLICATION OF THE FLIPPING LEARNING MODEL

The flipped classroom is a pedagogical model in which the typical lecture and homework elements of a course are reversed. So, the flipped classroom is a teaching method in which students study a topic at home by watching a video prepared or set by their tutor in advance to their regular lesson.

The classroom lesson which follows then provides the opportunity for them to ask questions and perform practical activities under their professor's guidance; in other words initial lessons become homework, while the traditional homework element of applying the learning through exercises and other activities moves into the classroom.

Flipped learning allows for a much more interactive classroom lesson, with the professor helping students when they are stuck as opposed to the traditional set-up of students passively listening to lectures and taking their assignments home afterwards. It's sometimes also called the 'backwards' or 'inverted classroom', or 'reverse teaching'.

It is a relatively new concept which gained traction in the latter part of the last decade thanks to increased access to the internet and the wider availability of online course management tools. It has the benefit of allowing students to work through subject matter at their own pace so that theoretically they can come to the classroom with the same level of

knowledge as their peers. Classroom time is thus freed up for students to collaborate and help each other through hands-on lesson activities. The professor can take more time to explain complex concepts, and students who might struggle and fail to complete tasks set as homework can be coached and get the immediate classroom support they need, meaning they get less frustrated and therefore less likely to drop out of their studies.

Since the FLM relies on students learning on their own, it is particularly well suited to the university environment. The individual learning element can take the form of video lectures recorded by the professor, podcasts, recorded PowerPoint or Prezi presentations, use of online learning repositories or other teaching resources. Students can then note down any questions they have and bring them to the classroom, where their tutor can go over them in more detail and provide one-to-one help where needed.

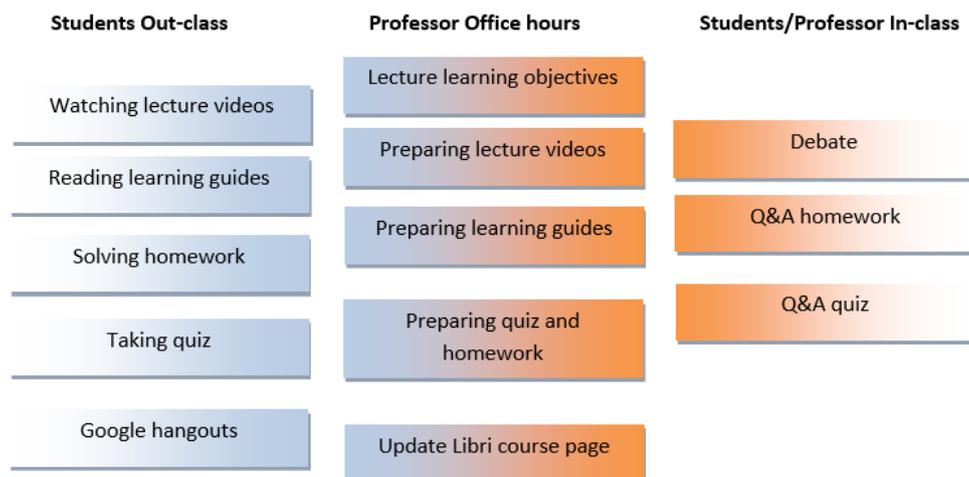


Figure 1. The process for Flipped learning design classroom application at SEEU

After the first introduction of FLM at SEEU in January 2015 training session, a surprising number of full time employed professors have wanted out information on Flipped Learning. So from the available University data it was founded that the FLM approach was recognized by 48% of SEEU professors. The number of professors who indicated they had flipped a lesson during the study year went up from 8% in April 2015 to 38% in September 2015. We also get that 92% of the professors who did the flipping they would suggest it to a colleague. Subsequently, above is presented an actual experience of applying FLM in a particular course and the outcome. After two years of establishment of the master course ITPM, the course was flipped in spring semester 2015 aiming to use class time for more applied activities and individualized instruction.

Behind this FLM practical experience, we outlined the process for Flipped Learning design classroom application (Fig. 1), that represents the actual work of the students out of the class face-to-face session, the professors' work during the office hours and both students/professor in-class activities.

FLIPPING CLASSROOM PREPARATION

Although the idea is simple, an effective flipping requires careful preparation. Recording lectures requires effort and time on the part of professors, and out of class and in class elements must be carefully integrated for students to understand the model and to be motivated and prepared for the class. As a result, introducing a flipping can mean additional work and may require new skills for the professor, although this learning curve could be mitigated by entering the model slowly.

Related to the following research, several professors were trained how to use Camtasia studio in order to record their lessons for the needs of the established online programs at SEEU [1]. A special office was equipped in the scope of the eLearning center at SEEU, with all needed resources available for the professors. A powerful MAC

computer, with installed Camtasia studio application and good microphone, were the resources that the professors could use them during the recording time.

So, concerning this research of applying FLM in a master course, the course lectures were recorded and posted on in-house learning management system LMS Libri. Namely, the lecture was divided in several sectional videos that were about 10 minutes long. For one sectional recording, the professors spent around 40 minutes to 1 hour to complete. The students were also provided with guided lecture notes (part of learning guides for each lecture) to be supported while watching the videos outside of class session. For each lecture module a quiz was provided for students to do it before the class, in order the professor to have an idea of difficulties students might have. Altogether, the students were supported with recorded lecture videos, lecture module learning guides, online quiz with 10 short questions, homework assignment, also power point presentation for that particular lecture and other supporting online materials. The students also had the opportunity to send in advance to the professor any question related with the upcoming lecture, in order the professor to be prepared for the answer during the face-to-face session and to open a more constructive discussion. Moreover, during the face-to-face session the lecture was debated and the students guided by the professor worked on the homework and quiz problems. In this manner, the students were able to get in-class assistance from their professor without waiting for help the next day. In the 3-hour face-to-face time frame, the professor was able to provide feedback on the homework/quiz, describe a more complex in-class assignment, discuss best practices, some raised student questions and facilitate individual and group discussions.

At the end of the semester the results were surprising. The comparison was applied on 36 student cases in spring semester 2014 and 49 in 2015. So, after implementing the flipped approach, as we can spot in Fig. 2, 50% of students in the course ITPM passed the exam (with a score of 8 or higher) compared with 19% the year before (a score of 8 or higher). Also after the flip, 44% of the students contacted the professor out of the face-to-face lecture, which was not the case in the year before, only 13% of the students. We can point here that the students were significantly more active and had better results with the flipping model of lecturing compared with the results from the traditional way of teaching.

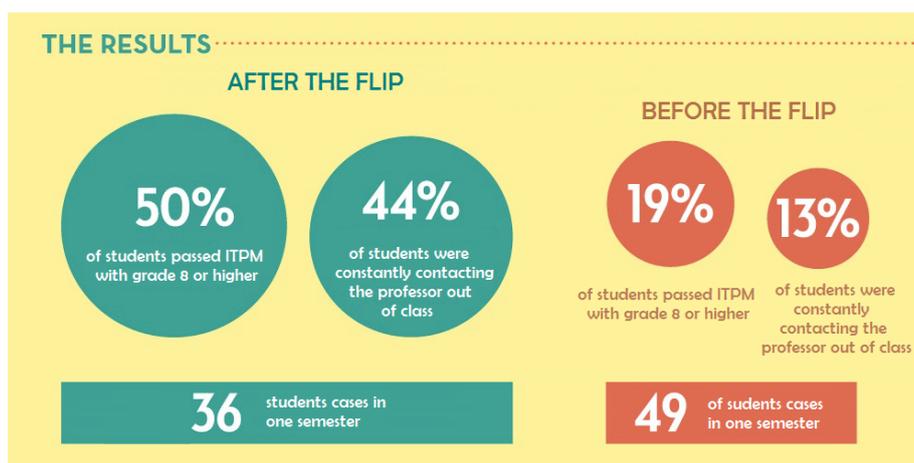


Figure 2. The comparison results of implementing the flipped approach at SEEU

One can conclude that the flipping method itself it is not difficult to initiate for the professor, but requires a set of technical skills, time, conceptual knowledge and pedagogical expertise to implement effectively.

DISCUSSION

As the flipping classroom becomes more accepted, new tools may become known to support the out of class part of the course curriculum. More courses will likely employ

elements of the flipping classroom, by supplementing the traditional out of class work with more video lesson presentations and supporting project/lab based efforts during usual class times. At a certain level of adoption, universities may need to take a broad look at class spaces to ensure they support the kinds of active and collaborative work that are common in flipping classes.

Analysis of the research based on the FLM application showed that this method of learning was well adaptable to the master course curriculum and stimulated cognitive activity of students. The applied methods have been effective for more intensive involvement of students in self-guided work. While using this learning model, the growth of activity and the number of discussions as well as the development of cooperation in the classroom were very positive.

Students demonstrated increased motivation and cognitive activity that resulted in a deeper absorption of the course material, in general. The students were much more interested to study course materials in a digital format using illustrative examples and video resources. The ability to pause and review the video lecture allowed students to study at their own pace. The research showed that in the flipping classroom demonstrated improved educational achievements among students.

As far as professors are concerned, effective flipping requires careful preparation. Making records of lectures requires additional work and time, and elements of classroom and extracurricular education must be integrated to allow students to understand the principle of this model and motivate them to the self-guided work. Flipping classroom means more work and requires new skills from both teachers and students.

One of the most important concepts in teaching is creating opportunities to students. When professors can really see the thinking of their students, they can provide these students with the support and encouragement they need to be successful. We believe that by using the thoughtful approach to the FLM described at this article, professors have an amazing opportunity to gain insights into where students are struggling. We tried to apply the concept of flipping classroom because it makes the student more self-sufficient and allows them to learn in their own way. In this context the literature spot problems in FLM application, but we did not address them in our case. The best advantage of flipped class is that precious time of class is not spent in something which the students may be able to do on their own so that the teacher gets more time to work upon their weak points.

CONCLUSIONS

E-learning is usually accepted as a powerful and important addition to traditional educational programs and new learning models are the key tools that sustain these new educational approaches. Therefore a considerable amount of study and development on both technological and educational issues in e-learning has been going on with outstanding results.

And, although e-learning is present for pretty long period and is making significant progress, even if we take these results into account, more study, research and application work is compulsory in order to produce more cases of success and to generalize e-learning in training and education. In many cases the traditional learning models are short of flexibility needed for implementing innovative educational models or simply for implementing e-learning strategies of a certain institution.

Flipping learning is a model that provides possibilities for more new innovative modes of teaching and learning. Hence its application is increasing in all learning dimensions. The flipping learning also encourages students to become self-learners, and better prepares them for how they will need to learn as practicing engineers.

The flipped classroom constitutes a role change for instructors, who give up their front-of-the-class position in favour of a more collaborative and cooperative contribution to the teaching process. While continued research and evaluation is certainly needed, the studies reviewed in this paper provide support for the efficacy and potential of the FLM.

The goal of this paper was to introduce and simulate a flipped classroom using a "flipped teaching" type of model of classroom instruction. Although the concept of a flipped classroom is a trendy concept in education, many lecturers have likely not experienced it for themselves in their own teaching.

As a future work we have to considered to go much more deeply and widely using "flipped teaching" not only as part of e-learning, but as new philosophy to increase the outcome of learning from students, based on more courses and professors, applying this technology.

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