

Utilizing Technology in The Flipped Classroom

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Abstract

The flipped classroom is an important and much-favored notion in education. The flip is also taking place in the language classrooms, which calls for much preparation from the part of the teacher. Applying technology is a pre-requisite. The presentation firstly familiarizes audience with the mechanism of the flipped classroom, then introduces ways to facilitate teachers' preparation.

The flipped classroom basically starts with students home preparation for classroom activities through reading assignments, visual materials or tasks. In class, the teacher checks students' comprehension of new notions and carry out further discussion to clarify terms and delve more deeply into contents. The differences lie in the amount of pre-work students have to do and the amount of discussion taking place in the classroom. The role of the teacher shifts basically from lecturer to facilitator.

To make sure students can prepare for lessons effectively, teachers need to provide well-designed materials, one of which is making videos and recorded slides. Recorded slides can be designed with the use of PowerPoint or Keynote. Video processing software like Corel VideoStudio Pro, Final Cut Pro or Adobe Presenter Video Express can be used to render videos. Authorizing tools like iSpring, Lectora or Articulate can also be utilized.

Introduction

At my university, the number of students majoring in English has been increasing in the last few years. While the number of teaching staff at the department remains the same (not to mention the absence of those on academic leave overseas), this huge register of newbies and oldbies presents a gigantic challenge to the available trainers, and thus on the quality of training itself. To make matters worse, the number of credits on skills subjects like reading and listening has just been decreased, with 6 out of 42 turned to other areas of study, including methodology, culture, linguistics and business. With the 36 allocated credits and the small number of hours of training, it is no mean feat to ensure all students receive proper care and attention. Even the other divisions do not enjoy themselves over the 2-credit increase, as the change is basically minute. Under current situations (which stem from the university management itself), there is a need to get students to work together under the teacher's supervision and guidance outside the classroom. It is not advisable, and even feasible, to get them to extra classes. The only alternative available is to organize online courses.

The only pro-factor for our department is the already up-and-running e-learning system which has been developed by the dean himself. There are currently several courses in operation, but the number of teachers organizing them effectively is a mere 2: the dean himself and the major IT professional in the gang. Other teachers are welcome to embrace the switch, and have been provided with training on how to make use of the Moodle system, yet the change is still nowhere to be seen (at least in the foreseeable future). As a matter of fact, too much seems to be required of the teacher when it comes to the preparation of the online class: the painstaking process of familiarizing themselves with all the buttons and navigations (Moodle is perhaps the most beneficial, yet the most complicated platform), the killer process of working on the materials, the uploading, the managing, the whole operation of the class itself, the reports of students' performance, the assessments, and the monitoring. Things do not come down easily on teachers at my place, as most of them actually prefer face-to-face interaction. The only incentive for the move is the limited training time, which many of the lecturers are willing to confront by other means than resorting to the web-based solution.

The flip classroom, one of the most popular incarnation of e-learning, can be one way to tackle the problem. Getting the teachers at my department to grasp the notion is not easy: it is the action part that raises eye-brows. As there are too many factors at work, I shall hereby attempt to provide fundamental knowledge of the flipped classroom, and how to make one part of it possible: creating visual materials for students' pre-class preparation.

The Flipped Classroom

The Flipped Classroom has been conceptualized in different ways; different researchers have called it different names. What, then, is the flipped classroom?

Walvoord and Anderson (1998) proposed a classroom model in which students gain exposure to the lecture before coming to class; in class, on the other hand, they rely on cognitive skills like synthesizing, analyzing, and problem solving with the purpose of clarifying the lesson contents.

Lage, Platt and Tregila (2000) put forward what they termed 'Inverted Classroom', as opposed to the traditional one on the grounds that the latter no longer fits in with students' attitude to learning. Similar to the model by Walvoord and Anderson, the 'Inverted Classroom' enables

learners to get first exposure to learning materials from outside the classroom, via such activities as reading textbooks, watching lecture videos, viewing recorded and narrated PowerPoint slides, and browsing PowerPoint slides that have been printed out.

A rather equivalent is the term 'Peer Instruction' coined by Crouch and Mazur (2001). In this model, the learner will focus on exercises, answering questions and doing short quizzes in class, and before they set foot in the room they have already made their preparations by watching pre-distributed videos. During class time, the learner has to answer conceptual questions and their responses will be recorded using various tools. Collection of the results enables the teacher to take the next step: whether or not to start a class discussion. The following stage is clarification of any remaining fuzzy notions.

The question is: why is there a need for a flipped classroom? Is there any theoretical ground for such a shift from the way classrooms have always been?

Bransford, Brown and Cocking (2000) offered these bases for the flip:

1. The pre-requisite to be 'good' in a field includes firm basic knowledge and the understanding of such within a conceptual framework, and the ability to logically organize such knowledge in a way that it can be easily applied.
2. Immediate post-class application of knowledge, together with peer and teacher's feedback, aid in the clarification of any vague terms, which simultaneously facilitate learners' self-reflection on their own study.
3. Such a method of instruction lays the foundation for learners' autonomy: the learner sets their own learning goals and keep track of the own progress.

According to Bransford, Brown and Cocking, then, the learner has to develop deep comprehension of a certain matter and must have the opportunity to experience it, and such experiencing has to be accompanied by two channels of feedback: the instructor and their peers. Not less important is the learner's self-discovery and putting his own theory to practice. The traditional classroom has not been able to enable such practice due to the limited class time and instructional methods...

How does the flip work?

Basically, the flipped classroom operates in two phases: pre-class exposure to knowledge and in-class discussion and application of contents. Bransford summarized four major principles of the 'Flipped Classroom':

1. **The learner receives exposure to knowledge before coming to class.** This can be conducted via multi-channels: instructional materials, textbooks, instructional video clips... As long as the learner *does* prepare before coming to class, this principle is adhered to.
2. **The learner needs motivation to make pre-class preparation.** Merely requiring learner to 'prepare' their lesson sometimes does not stand as enough incentive. The teacher might consider certain forms of punishments or bonus scores.

3. **The learner’s level of understanding needs to be assessed via different means.** One such is online flash quizzes (which should be carried out before class), the aim of which is for the teacher to pre-determine what points of knowledge the learner has not conquered, based on which he will decide on whether to carry out more discussion. Such a purpose can also be achieved through in-class activities. The core lies in the insurance that all learners’ efforts *are* valued and taken into consideration.

4. **Higher order thinking is encouraged.** Upon preparation of necessary knowledge, the learner comes to class and engages in cognitive processes, i.e. relying on their analytical, synthetical, evaluative, and creative capability to converse, discuss, and debate over new contents.

The flipped classroom vs. The traditional classroom

	The flipped classroom		The traditional classroom	
	Pre-class	In-class	In-class	Post-class
Teacher’s role	- lecturer - material provider - exercise giver	- facilitator - concept clarifier - feedback giver	- lecturer - facilitator - error corrector - feedback giver	- none
Learner’s role	- preparing lesson	- experiencing knowledge	- listening to lecture - taking notes	- doing homework - reviewing lesson
Classroom activities	- watching instructional video clips - reading instructional materials - searching for further materials online	- discussing - debating - solving theoretical issues - solving practical issues - personal projects - experimenting - giving presentations	- lectures - exercises - presentations - debates	- homework

With the concept and principles of the flipped classroom plainly laid out, it is of essential value to juxtapose features of the flipped and the traditional classroom for a side-by-side comparison. The three criteria for contrast includes: the learner's role, the teacher's role, and classroom activities.

It can be seen that there exists a significant difference in the pro-activity of students in the flipped classroom. Learners' activities are more varied as well. For the traditional classroom, the teacher *does* require learners to prepare their lessons before class, but such a preparation merely involves the reading of one or two prefabricated materials in the textbook, exclusive of external sources of knowledge. In class, students' preparation does not appear important, as it is agreed tacitly that the teacher will do the lecturing all over again.

The pros and cons of the flipped classroom

Hattie (2008) noticed that students' learning efficiency is boosted provided there is enough time for slow-paced pre-class preparation, and with less peer pressure at the same time. Specifically, the previewing of materials becomes highly personal: each learner previews his own lesson, takes notes, contemplates, and figures things out on his own. Instructional videos can be replayed, which proves convenient when students have not grasped certain points. The positive consequence is the learner no longer feels he is reading 'more slowly' than his peers, and so his reasoning is enhanced.

Beesley and Aphorp (2010) and Hattie (2008) stated the benefits of 'on the spot' feedback, and of experimental collaboration. The key lies in the opportunities students have to clarify fuzzy notions, and as higher order thinking is stressed, the learner finds it easier to memorize and apply new knowledge.

Jenkins (2012) believed recorded instructional videos cater for various learning types: verbal learners, visual learners, and audio learners can all take advantage of such. The video clips have words, images and audio, and with meticulous preparation, contents will be condense and the digressions on the part of the teacher can be minimized.

Bergmann and Sams (2012) believed the flipped classroom facilitates teacher-student interaction, and Hamre and Pianta (2005) stressed its benefits on slow learners. In fact, as the teacher walks around and discusses with his students, interaction is greatly boosted. Weak students also receive more attention, and so have more chance to improve themselves.

However, the flipped classroom proposes big challenges. Jenkins (2012) stated these hurdles.

1. **Insufficient facilities.** Numerous schools are not adequately equipped to make possible processes like audio recording, video recording, and some do not have internet connection. A certain number of students are not connected to the internet, and some do not have personal computers.
2. **Learners' abuse of equipment.** If schools allow learners to use their computers for studying, some of them can take bad advantage of these devices, resulting in underachievement.

3. **Teacher's reluctance.** Not all teachers are ready to embrace the new method, and some do not have the ability to do despite their strong desire: they lack technology and technical competence, so creating materials can be a painstaking and time-consuming process. Some even have to spend more time in class to clarify contents not so clear in the videos.

Aforementioned was some basic understanding of the flipped classroom. The next section will devoted to some technology that can be utilized by nearly all teachers with access to a computer and the Internet to prepare their learners' visual materials.

Boosting the flip with easy technology

'Visual materials' is an umbrella terms, yet in this paper I will focus on videos and recorded slides. As a matter of fact, most teachers are already familiar with projecting slides onto a screen and start lecturing with the already noted down key words. What is going to be outlined in this paper is the next step: turning it to e-based material which can be accessed and self-studied by students without the teachers' presence.

Microsoft Office PowerPoint & Apple Keynote

PowerPoint and Keynote are primarily utilized to design slides that are supposed to be broadcast live at the classroom. A commonly neglected feature is the 'Record' button. The slides can be narrated with the voice of the presenter, and all the animations and transitions can be retained perfectly. The video format of the publication can be compatible with most operation systems. The easiest way to distribute such video files after rendering is via YouTube. The generated link can be disseminated easily to all students.

Adobe Presenter Video Express

The video rendered from PowerPoint or Keynote has one drawback: the absence of the speaker's face (only his voice can be heard). To solve this, Adobe Presenter Video Express gives users the ability to record both the slides and the face of the recorder at the same time. The user-friendliness of the software is its extreme selling point. However, the video resolution is not too high (enough for the average users, but a little disappointing for the professionals). The face of the speaker can be set to appear to the right, to the left, or to disappear altogether. However, for educational purposes, such a video certainly meets teachers and students' demand. After all, it is the contents that matter most.

Movie rendering software: Windows Live Movie Maker, Apple iMovie, Corel VideoStudio Pro, Adobe Premiere

Those who wish to produce even better looking videos, with fancy intro clips and impressive effects are welcome to try the Windows-based Live Movie Maker, Mac-based iMovie, or other more powerful tools like Corel VideoStudio Pro, Adobe Premiere or ProShow Gold. These are more reserved for those with ample experience with rendering videos, as the process before adequate manipulation with the software can be truly painstaking.

Prezi

One new trend which has appeared as opposed to the boring PowerPoint slides is the use of Prezi. This is like a total rejection of the linear order often found in PowerPoint slides, and it looks much more free-style. Prezis offer an intriguing tool for the creative and artistic mind, and can be really inspiring if properly used. Another winning point of Prezis is its Internet-based

platform. The Prezi files can be created directly online, and become immediately sharable upon finish.

Authorizing tools: iSpring Suite, Lectora, Adobe Captivate

These tools require much more effort and expertise than the previous, yet they can produce truly amazing interactive learning materials. iSpring Suite is best for designing quiz, Lectora for lectures, and Adobe Captivate somewhere between the two. The final products of these softwares can be applications run on Windows (.exe files), or web-based projects (HTML5). These do not operate on the Mac system though. However, the HTML5 platform makes it possible for these contents to be viewed everywhere on the web, and on any devices (mobile or land-lined) provided it is stored somewhere there.

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