

# ACTIVE LEARNING AND THE FLIPPED CLASSROOM

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The flipped classroom is a pedagogical approach in which the learning is student-centred rather than teacher-centred, mediated by technology. A flipped classroom allows the transformation of the transmissive lecture into a program of pre-class preparation, in-class tasks and post-class work (Abeysekera & Dawson, 2015).

Typically, in a well-designed flipped classroom, trainees take ownership of their learning and teachers become facilitators. This concept has been around for more than a decade in blended learning (Garrison & Vaughan, 2008). You can flip your entire training course or choose specific sessions. It all depends on the nature of the topic, trainee availability, logistics, etc. Recently, with the increasing affordability of technology (smartphones and tablets), it has become popular in schools, universities, and training organisations.

## Advantages of the Flipped Classroom

The main advantage of a learning design incorporating this approach is

that trainees will have the flexibility to engage with the information before entering the classroom. Flipped classrooms can also foster individual inquiry, collaborative effort, social interaction, reflection, and independent learning skills (Bergmann & Sams, 2012). It will help trainees who have English as their additional language. From the instructor's perspective, flipped classrooms can provide opportunities to address trainees' misconceptions and to use additional examples in the classroom to clarify concepts. This can increase trainee-instructor interaction and lead to more effective learning.

## How does Flipped Classroom work?

Looked at as a pedagogical approach, the flipped classroom can be located in the SOLO Taxonomy or Bloom's Taxonomy (Gilboy et al., 2015). Trainees can engage before the class with the content and begin understanding, remembering, describing, and explaining. During the class, they can engage in activities such as applying, analysing, and theorising, and, after the

class, in activities such as evaluating, creating, hypothesising, reflecting, etc.

During the class, the instructor will ensure there is a connection between pre-class content and in-class tasks. This gives trainees the opportunity to demonstrate and apply what they learn in real life. The instructor can include discussion and consideration of ideas, scenarios, implications, possibilities, applications, etc. It is crucial for learning that the instructor is present when trainees attempt to analyse and apply new knowledge (Johnson, 2013).

After the classroom, trainees can get engaged in higher-order thinking tasks like creating artefacts such as videos, presentations, podcasts, etc. A clear connection between pre-class, in-class, and post-class material is essential. Many flipped classroom approaches will fail if trainees cannot see the link between these three dimensions. In fact, poorly designed flipped classroom can create a divide between these dimensions and may cause trainee frustration and disengagement.

The core pedagogy for the flipped classroom model is called 'Active Learning', where students learn by doing things rather than listening passively (Silberman, 1996). Active learning provides students with the opportunity to think critically about knowledge with a range of activities which could include: collaborative learning, project-based learning, enquiry-based learning, problem-based learning, peer learning, and case studies. These activities give meaning to what trainees learn and help them to reach understanding, letting their brains 'write' this into their long-term rather than short-term memory.

### What are the drawbacks?

One of the main limitations is that developing resources for flipped classroom can be time-consuming, requiring careful planning and preparation. The first question you will need to ask yourself is - what to flip and why? You could search for material already available, such as YouTube

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videos, websites, blogs, and Open Educational Resources. The key is to identify suitable content and wrap it into a sensible learning design that has a step-wise progression. Activities programmed between steps, such as self-reviewed quizzes, discussion forums, blogs, wikis, or reflective journals, will help trainees to reinforce what they are learning.

Requiring trainees to complete work before the training session can be challenging. This can be addressed, for example, by giving a certificate of completion at the end of the pre-class work (Captive online module). Another strategy is 'peer pressure' - telling trainees that they will be allocated to groups and a participant randomly selected to lead the group during the face-to-face session.

Another limitation of the flipped classroom is that it requires constant monitoring and improvement. Before you release your content to trainees, you will need to put in place a feedback mechanism such as a survey to gauge students' experience using the flipped classroom. This data will inform its improvement.

However, the main drawback of the flipped classroom is that there is limited evidence-based research on its effectiveness (Jensen et al., 2014). According to Abeysekera and Dawson (2015), the flipped classroom approach is under-evaluated, under-theorised, and under-researched in general. We recently conducted a literature review in flipped classroom which returned publications mainly in the form of conference proceedings, supplemented by a few journal papers. Most refer to case studies and none of them rely on particularly rigorous research designs.

### The future

At UTS we are currently developing a framework to guide instructors and

trainees on implementing the flipped classroom. This framework will provide a consistent approach when developing the flipped classroom, and it will inform trainees of the advantages of this way of learning. This is an exciting area of research, as there are a lot of knowledge gaps to be filled. We will present the framework at a couple of conferences this year to seek feedback, and then evaluate it in 2016 for science subjects. We are planning to publish our findings in a peer-reviewed journal. We are happy to answer any questions or comments you may have.

### References

- Abeysekera, L. and P. Dawson, 2015, "Motivation and cognitive load in the flipped classroom: definition, rationale and a call for research." *Higher Education Research & Development* 34(1): 1-14.
- Bergmann and Sams 2012, *Flip Your Classroom: Reach Every Student in Every Class Every Day*. *International Society for Technology in Education*.
- Garrison, D. R., and Vaughan, N. D. 2008, *Blended learning in higher education: Framework, principles, and guidelines*. John Wiley & Sons.
- Gilboy, M. B., et al. (2015). "Enhancing Student Engagement Using the Flipped Classroom." *Journal of Nutrition Education and Behavior* 47(1): pp109-114.
- Jensen, J. L., et al. 2015, "Improvements from a Flipped Classroom May Simply Be the Fruits of Active Learning." *Cbe-Life Sciences Education* 14(1).
- Johnson, G. B. 2013, *Student perceptions of the Flipped Classroom*. Thesis. The University of British Columbia.
- Silberman, M. 1996, *Active Learning: 101 Strategies To Teach Any Subject*. Prentice-Hall, Des Moines, IA.

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