Flipped Classroom

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Context

Description:
A flipped classroom is a type of blended learning where students are introduced to content asynchronously away from classroom, usually in advance, and use the synchronous 'live' classroom time to discussions, workshops, experiments, labs, peer assessment and review.

This is the opposite of the more common practice of introducing new content live in classroom. In a common Flipped Classroom scenario, students might watch pre-recorded videos at home, then come to class to do learning activities around the content, equipped with at least some background knowledge.

Relevance of method to climate change design teaching integration:
Drawing on the context for the ARCH4CHANGE project in general, in particular the contextual Literature review and Survey findings, flipped learning is a form of student centered learning which requires students to acquire foundational knowledge through self-study at home before using class time to delve deeper into the topic under the guidance of the teacher. This facilitates a move from passive learning to active learning.

Practical Considerations

Class Size:
This method is applicable to a range of class sizes, as the student undertakes the material study in their own time. What needs to be considered however is the format of the in person learning activities. Smaller groups may utilise individual or paired learning activities, whilst larger groups could utilise larger group working exercises.

Learning Stage (Year Group):
This approach is applicable to all learning stages, however foundation years may struggle with the concept of self-directed learning. In all cases clear communication to students is essential for the approach to be successful, but it is even more critical in foundation years. Educators must not only clearly explain to students what they are doing and what is expected of them, but also the rationale behind the activity

Educator Resourcing/skills
The workload of the educator may be greater at the start as content needs to be prepared for asynchronous use by students where it doesn't already exist. However, the resources, videos and other content created by the teacher can then be subsequently reused. Therefore there is an upfront time commitment but a reduction of inperson time. Educators will need to operate in a facilitator role and have good communication skills.

Available teaching space & resources (tech etc)
Depending on the type of in person learning activity used, a range of resources from basic to more advanced are required.

1. Conventional Flipped Classroom:
• Basic model.
• Video material reviewed at home, individual work in class
• Classroom time is then spent with students putting their knowledge into practice and expanding their understanding.
• MA ore enjoyable and more interactive classroom-based lessons. It enables teachers to spend less time disseminating basic information and more time developing students' understanding.

2. Group Based Flipped Classroom:
As above, but students are placed into groups so that they further their understanding of the topic together.
This allows them to challenge one another, while their comprehension can be improved by learning how to explain a topic to their peers. Some teachers choose to emphasize the group aspect of this model even further by including teamwork elements within the home-learning stage

3. Micro Flipped Classroom:
Half way house, still maintain elements of traditional lecture learning. This could involve material provided during one session, to be reviewed at home by students with a discursive – interactive review in a subsequent session.

4. In class/faux Focused Flipped Classroom:
Basic approach is still the same, with online information followed by a more practical lesson, but the initial learning is carried out using computers in the school.
There is also flexibility here, as teachers can show the entire class the learning material or provide a period of time at the beginning of the lesson for students to all acquire the information independently. Alternatively, students may be asked to use computers in the school, but still do the initial work in their own time

5 Virtual Flipped Classroom:

A virtual flipped classroom can utilize any of the following teaching approaches.

6. Debate Focused Flipped Classroom:

Debate, or a series of debates, with their peers. This teaching and learning activity can strengthen understanding by revealing some of the complexities and different viewpoints that exist within a topic.
Furthermore, debates help to reinforce information learned at home, resulting in superior knowledge retention

7. Discussion Focused Flipped Classroom:

Students engage in-depth discussion about the topic, revealing some of the nuances, broadening their understanding, and learning about different perspectives. a more relaxed environment than you might expect from a formal debate.
This particular approach can be especially valuable for discipline and areas in teaching for sustainable architecture where context plays a crucial role and where questions may not have a simple or correct answer

8. Presentation Focused flipped classroom:

Especially for those subjects that require students to remember and repeat activities exactly it is most helpful to have a video demonstration to be able to rewind and re-watch. In this model, the teacher uses screen recording software to demonstrate the activity in a way that allows students to follow along at their own pace. This approach may be beneficial for skills acquisition such as use of carbon calculation tools.

9. Flipped teacher approach/double flipped Classroom:

Students are asked to create learning materials, such as a video, in order to demonstrate their understanding of the topic.
Much like the debate and discussion-based flipped classroom, this approach helps to reinforce what students have learned and allows students to develop agency in their own learning
Additional benefits, such as helping to develop technology skills and allowing students to gain experience in academic instruction

Teaching & Learning Considerations

Themes:

This approach can be used for any of the ARCH4CHANGE curriculum themes and indeed the platform is an ideal source of asynchronous material for student review.

Learning Outcomes/Objectives

- Creates an **interactive learning environment** where the educator or teacher can spend more time guiding students by answering their queries, helping them solve problems, and clear any confusion regarding the new topic
- Helps improve students' **engagement and communication** between the teacher and students as well as their peers
- Provides the students with the opportunity to **learn at their own pace**; for an example, they can rewind, pause and fast-forward a video lecture as they want
- Helps **retain the focus and attention** of the students during the entire lecture
- Paves the way for **deep learning** when students processes and reflects on new information and concepts on their own
- Helps teachers g**et to know their students better,** identify why they are struggling and where they are excelling

Course Context (alignment with other subjects/modules)

In person learning activities may be used to draw in other subjects, relate content and synthesise content, promoting transformative learning.

Timeframe (length of learning activity):

Timeframes for completion of the asynchronous content should be delivered in timely manner to students to allow them time to review and prepare for in person learning activities.

The learning activities should take place within all of the allotted teaching slot, where once the more traditional passive delivery had taken place and should be of a type as given above. How educators choose to use the additional time they now have in class is what defines each of the variations of the flipped classroom model.

Depending on the scale of the module/course in which flipped learning is being delivered, educators might consider a stepped approach where one set of content is delivered in a flipped learning manner, which is then expanded and built on year on year.

<u>Methods</u>

A basic stepped approach is given below:

Step 1: Introducing the task

> This starts with setting clear expectations by clarifying what exactly you want your students to do and the amount of time they will need to spend in order to prepare for the upcoming in-class activities

Step 2: Selecting learning material

> Existing or created. Have a space in the material to capture questions

Step 3: Evaluating what students have learned

- Self-assessment quizzes (limit the number of questions included)
- Multiple choice or short answer questions (this can also be done at the beginning of the in-class session)
- Online discussion forums where students can share comments or questions about the lesson which can be discussed prior to the class online or at the beginning of the class itself
- Concept maps are a great way to test the student's understanding of a concept. Precis writing helps students aptly summarize what they've learned in one brief paragraph and it's another great way to evaluate their understanding of the pre-class assessments.

Step 4: Conducting in-class activities

The nature of these activities will depend on class size, learning stage, ECTS, staff resourcing, available teaching space and resources. These activities could utilise peer to [peer learning, scenario based learning, collaborative learning, applied learning, role play, learning by doing methods.](#)

Some example types of activities are given here:

- Asking quizzes and discussing the answers as a group;
- Going over areas the students traditionally find difficult to understand. You can help find these out either by your own experience, exam results, by asking students to nominate things they want to go over, or by looking at the 'viewer statistics' on Panopto for your video. These will show you areas of the video the students have watched more than the others;
- Planning an exam essay answer to a question;
- Asking students to pair up and explain a process/concept to their partner;
- Discussing the research that led to the discovery of the information;
- Telling a story from your own experience;
- Role playing activity to reinforce a concept;
- Get the students to write an exam question on the subject;
- Problems for students to work out in groups

- Get students to research gaps in the pre-class information using books, phones, computers and tablets;
- Get a series of students to explain aspects of a concept to the rest of the class;
- Get students to work together to argue against an idea or disprove a theory.
- Research gap
- Conventional flipped classroom can stil be implemented (e.g. discussion, debate, group activities)
- Easier prompts for virtual workshop activities like game based learning, simulation, labs, polls,
- Fostering engagement: live discussion board, peer review, more team activities.

Deliverables

From educator perspective: Asynchronous content for students, learning activity framework.

From students perspective: Content is reviewed in advance of learning activity session. Participation in activity which may have specific deliverable or be linked to formative or summative assessment.

Feedback

Students should be given opportunity to feedback/interact with asynchronous material and to provide feedback to educators on the learning obtained. Depending on nature of in person learning activity, instantaneous formative feedback should be given by educator to students in relation to the process, discussion, session deliverables. Where this is tied to summative assessment this can be followed by more formal feedback after the session.

Assessment:

Research shows use of flipped learning has reported improved marks, engagement and student satisfaction.

Consideration should be given whether the in person activity is formally linked to assessment or informs assessment. Whilst the former is possible but it is recommended that flipped learning sessions contribute to formative feedback only rather than being tied to a formal summative assessment to enable a more creative, free engagement in the learning activities by students

Recommendations

<u>Student Reflection</u>

Space and time for student reflection needs to built into the timeframe for the in person teaching activity. This could be facilitated by use of a journal type entry, pros and cons discussion, etc. See how to guide on reflection for more information.

Potential Pitfalls/challenges

- From a student perspective, educators will need to communicate that this is not an increase in student workload but a shifting of it.
- Often significant upfront preparation by educator required
- Up front time commitment
- Student adaptation (students often feel at first that they are not learning as well as in traditional classes)
- Ongoing updates likely/future proofing content
- Challenge of how to keep students engaged during the presentation phase of foundational knowledge, which is often done using lecture-style teaching
- Potential conflicts if other coursework deadlines were looming around at the time, then the flipped videos were seen as a low priority by some students.
- Five key factors that promoted student engagement: interaction, active learning with feedback, supported problem-centric learning, teaching variation and teacher attributes.

Overall 4 'pillars' of flipped classroom are:

1. A flexible environment
2. A culture of learning
3. Intentional content
4. A professional approach to facilitation

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