LEARNING SCENARIO Flipped Classroom: a radical transformation of class interactions

Educational level: Secondary 1,2 | **Age:** 10 to 18

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LEARNING OBJECTIVES/ ASPIRATIONS

To allow a radical transformation of activities, relationship and expectations, by "flipping" two core elements of the educational experience: school-time and home-work time. The scenario is based on the topic of 'Wildfires'.

NARRATIVE OVERVIEW

The basic idea behind flipping is that lectures become homework, while class time is used for collaborative student work, experiential exercises, debating and lab work. Videos and other e-learning materials are used extensively during "home time" to deliver learning content, while class-time becomes open to experimentation and collaboration. For example, for the topic of 'Wildfires', the flipped phase introduces to the topic, the difference between naturally occurring and human-caused wildfires. The students are provided with the scientific knowledge, and illustrative videos. They are also asked to analyze an interactive map of global fire activity and create a list of six factors they think are contributing to why wildfires are getting worse. During the 'class' time, students apply the knowledge in engaging activities, projects, and discussion.

Flipped Classroom is not a fully-fledged pedagogical approach, but a philosophy meant to be used flexibly and fluidly alongside all the tools one has gathered during their career. "Flipping" can positively impact student learning regardless of the subject or the type of classroom.

It becomes important that the additional classroom time gained through 'flipping' is used as effectively as possible, and that the resources students use in their own time are of the highest possible quality and appropriate to their current levels of knowledge.

A content library (LMS) that is integrated with online videos checked for quality and accessibility can be very helpful. The teacher can put the rich repository of content developed throughout the years of their practice to good use in a structured approach, filling any gaps with high-quality resources available for free over the internet.

One can look within the curriculum to identify topics that lend themselves well to 'flipping', like those that do not require significant initial student-teacher interaction and that have high-quality resources for the at-home instructional element.

It is also important to ensure that students understand the purpose and format of 'flipping', and have the needed technology. One can support students who lack access to resources at home to find other times and locations to view the materials. For instance, one can introduce a school scheme that provides students with notebooks, to help ensure access for students and encourage them to complete their home tasks.

APPROACH TO TEACHING AND LEARNING

Students access content through teacher-designed blended instruction. They watch the videos, read the materials, take notes independently. Students learn at their own pace within the unit of study. The class time is devoted to activities and assignments based on the instruction.

Approaches: project-based learning; enquiry-based learning; and facilitated discussion

ASSESSMENT: **F**ormative assessment

ROLES

TEACHERS: Plan, structure the instruction and materials for independent study - the flipped phase. Prepare the materials (e.g. videos). Assign tasks. Organizes the activities and guides students through feedback. Organizes peer work, support individual students in mastering a unit, and finding solutions or finding mistakes and correcting them

LEARNERS: study the material individually, apply what they learned in class through a variety of activities or assignments with a teacher working as a guide. Students can work at their own pace, determine what they need to review.

PARENTS: It is likely that some students and their families might oppose 'flipping'). Therefore, it is important for teachers to be explicit with student and families about the approach, and its aims

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LEARNING ENVIRONMENT

- **Investigate** (in class or at home): students study the materials independently and develop solutions to the tasks;
- **Interact:** interacting with the learning content. The teacher gives instruction and sets the tasks.
- **Exchange:** students in groups prepare and discuss the solutions of the flipped phase they were preparing for the class; a teacher controls the prepared solutions.
- Students reflect on the discussion and **develop** Interventions based on the discussion and peer tutoring. Teacher supports students individually.
- **Exchange and present:** Students compare and share their 'interventions', new solution. Teacher listens and takes notes, at the end uses coaching strategies for rethinking or remaking the prototypes/solutions.

POSSIBLE CHALLENGES

- After the first weeks of flipping, some initial challenges arise. Class time requires a different, but just as rigorous, form of planning, and that collaborative activities and project work come with their own issues to be addressed separately.
- However, after some initial adjustments, the benefits become evident, as the classroom becomes a place for more effective learning activities and increased student-teacher

RESOURCES

- Individual laptops/tablets for students to ensure equal access to resources; Wi-fi access.
- Mobile camera (home - work): iPhone or Smartphone
- Learning management system as videos created by the teachers, resources must be distributed and available for all students 24/7
- High quality videos (aurasma. com; h5p.org to create content), if available in the national curriculum or taken from Internet resources
- Free interactive whiteboard software for home-work (e.g. "Explainerverything", Screencast-o-matic, Padlet).

LEARNING ACTIVITIES

The Flipped Phase (prior to class): Students watch videos about wildfires, and their impact on the state of Colorado, why they seem to be getting worse. Individual exercises can be set up in advance of group ones in the classroom to give students more individual reflective time to learn. Students are asked to map out how concepts, ideas or theories are thematically related in a visual manner. Students are asked to write 3 questions they want to be answered. Students create a web diagram citing six reasons they think wildfires are getting worse.

In-class problem-solving activities aim to engage students in tackling problems during class with their peers and the teacher to discuss challenges. Group activities are the key in in-class phase. Each student brings their own individual understanding of the content and students share and draw on each other's knowledge and understanding. Students are presented with a set of complex problems or real-life scenario that require multiple steps to solve. Students work collaboratively to solve the problems.

In **Exchange Zone** students participate in an interactive activity based on the questions they wrote: they spin the wheel and answer the questions the wheel lands on. Next, students explore how to prevent wildfires and write down 3 actions that they will each personally take to help stop from spreading and starting. In the Present Zone, they present their ideas. The final quiz: students respond to multiple-choice and true/false questions and present the outcomes. They get feedback from the teacher.

LITERATURE TO SUPPORT

- Definition of Flipped Learning: Flipped Learning Network Hub
- https://sites.google.com/pdst.ie/blended-learning/models/flipped-classroom-model

LEARNING SCENARIO VIDEO

https://www.youtube.com/watch?v=ozk7I-UFITU

Co-funded by the Erasmus+ Programme of the European Union

The learning scenario is created by the DesignFILS project (http://designfils.eba.gov.tr), funded by EU's Erasmus+ KA2 (grant agreement 2019-1-TR01-KA201-076567). The contents of the publication are the sole responsibility of the authors, and the EC or Turkish National Agency cannot be held responsible for any use which may be made of the information contained therein.