



Circular Economy Lab & Observatory

2020-1-IT02-KA201-079994

# Flipped Classroom **Guidelines & tips and tricks for students**

How to build a flipped classroom experience  
on sustainability and circular economy





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This guide is divided into different sections: you will find methodological and theoretical insights, focus points (which will also be shared within a live webinar training session) and T&T for students, that you can give to your classroom to help them out in presenting their home study results in an efficient and cool way to their classmates.

**The guide has been edited with our current special teaching conditions in mind and thinking that probably (and a bit sadly), you will be forced to carry out the whole experience online, without the comfort of face-to-face lessons.**



## Inspiring a new phase



### Focus point

*“Flipped learning pedagogy stems from the premise of inquiry-based and egalitarian philosophy: with the growing access to vast information through the internet, the traditional model of teacher as the sole steward of knowledge has become obsolete”*

(Jenkins et al., 2017)



### Methodological and theoretical insight

One of the fathers of the flipped learning approach Professor Jon Bergmann stresses that, in this framework, teachers are even more valuable, because flipped learning changes the dynamic of the classroom.

No longer is content delivery the focus of the class, nor is the teacher's main responsibility the dissemination of knowledge. Instead, teachers take on the role of a facilitator of learning. They can work with students in small groups offline and online. The simple act of removing the plain traditional lecture from the whole group work changes the dynamic of the interaction and allows the teacher more time to personalize and individualize the learning for each student.

Each student gets his/her own education tailored to their individual needs. Instead of a one size fits all education, each student gets just what they need when they need it.

## The historical side of it



### Focus point



In the 1990s, Harvard physicist Eric Mazur developed **“peer instruction”** the students **were asked to study individually before the lessons and then...**

In class, the teacher followed this procedure:

1. teacher **asked a question** about the home-study;
2. students **thought on** the question;
3. students **chose the answers individually**;
4. teacher **reviewed each answer**;
5. students **discussed their decision making** process together;
6. students had a **chance to modify their answer**;

In the end of this process the teacher analysed the answers one more time, and then decided if it was the case to **explain further or move on to the next idea**.

This method is **very similar to how flipped classroom methodology operates even nowadays**, only with more viewing and less reading before class.

## It was a “ripple effect”



### Methodological and theoretical insight



The Clintondale High School in Michigan had the distinction of being one of the state's worst schools.

Principal Greg Green and social studies' teacher Andy Scheel decided to try something new. They taught identical material in two classes. One was flipped and the other was traditional. The flipped class included many students who had already failed the course.

After 20 weeks, every student in the flipped class was passing with at least a C+. The traditional class showed no change in results.

While understanding how people share ideas adds to the knowledge of group dynamics, it does not give a complete picture. One also needs to consider the **sharing of emotions, or emotional contagion, that occurs in groups**: and this was probably what happened in the Clintondale flipped class.

In 2011, Clintondale flipped every class in the end.



## A simple definition of Flipped Classroom



### Focus point

*“Inverting the classroom means that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa”*

(M.J. Lage, G.J. Platt, and M. Treglia. Inverting the classroom: A gateway to creating an inclusive learning environment. The Journal of Economic Education).

The flipped classroom is an **educational technique** that consists of **2 parts**:

1. interactive group learning inside the classroom or in webinar;
2. direct computer-based individual instruction at home.



## The word of the founder



### Methodological and theoretical insight

*“In 2007, Aaron (Sams) and I discovered some software that would record our lectures live. Then in the spring of that year we had an idea for what is now known as the flipped classroom, where we stopped giving the lectures. We committed the following year to prerecording all our lectures, as we now had a bigger vision for that. As a note, we didn’t call it the flipped classroom -we called it pre-broadcasting- and eventually it became known as the flipped classroom.*

*I can say prior to us, in 2000, a couple of professors from the University of Miami wrote an article on what they called the inverted classroom. It didn’t take off, because I think it wasn’t the right time. YouTube was not around yet. Even though we came up with the idea in 2007, they probably had the idea, at least as far as I know, originally, but we’ve been calling ourselves pioneers in the movement since we’ve been the ones in the forefront”.*

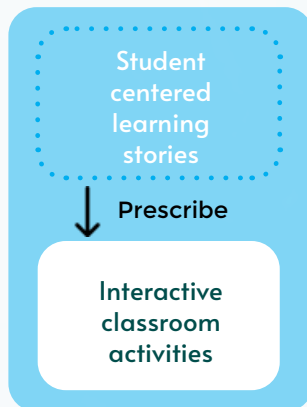
Jonathan Bergmann, official founder of the Flipped Learning

## A chart of the flow

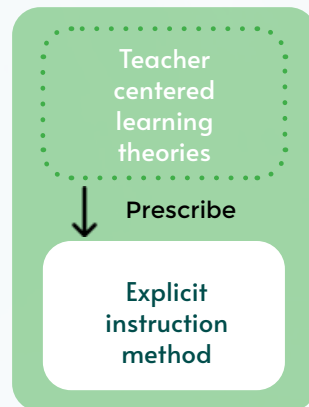


Focus point

HUMAN INTERACTION  
IS REQUIRED



CAN BE AUTOMATED  
BY TECHNOLOGIES



## The good vibe and magic list



Methodological and theoretical insight

A flipped classroom has advantages for teachers and students alike.

In the “The Flipped Classroom: A Survey of the Research” study, university professors J. Bishop y M. Verleger say:

*(...) students supplied with optional video lectures came to class much better prepared than when they had been given textbook readings. This observation is encouraging because although learning gains are high for information presented textually, shows that college students don't generally complete reading assignments.*

Bishop, J., Verleger, M., (2013) “The Flipped Classroom: A Survey of the Research”.  
ASEE National Conference Proceedings, Atlanta, GA.

<https://faculty.erau.edu/Matthew.Verleger>

## 8 reasons to Introduce the Flipped Classroom

1

Flipped classroom improves student performance

2

Classes are more hands-on with flipped classroom

3

Students take responsibility for their education

4

No limit to enrolling students

5

Flexibility to form groups

6

Customized training

7

More active participation from parents

8

Flipped classrooms give teachers a more important role

## Let's start!



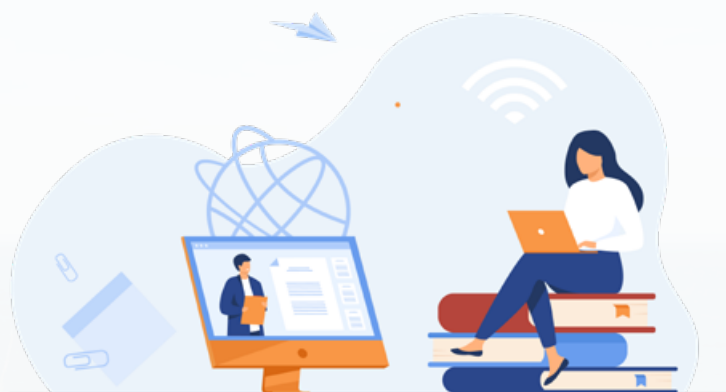
### Focus point

When you need to learn how to do something, or to cook something unusual, or to use a new equipment and even to prepare a particularly engaging lesson...

### What do you do?

*You Google it!*

*You YouTube it!*



## Why do we need self-instruction?

### Focus point

Because you know it is the best way to learn **in your own style, at your own pace.**

Is Self-Directed Learning the **new learning**?

It certainly is the **NOW learning**: students in the age of iPads and Google have been doing this since before they could walk.



## Switch the perspective

### Focus point



What would normally be labeled as **'homework' is now done together and interactively** (inside the class or in a webinar meeting) under the careful eye of the teacher... who can truly do her/his job, as opposed to being useless to the student struggling with the same assignment at home.

Shift from **homework** to **cowork!**





## That's what we'll do!



### Focus point

Lecture is shifted to **homework** time: opening possibilities to a **direct learning** process, favouring **self-responsibility**, eliminating classroom distractions and the need to tell Johnny a dozen times to sit down and get a pencil out (he doesn't even have one).



## Home and pandemic



### Methodological and theoretical insight

During this difficult time of our history, the original “call” of the flipped classroom can be biased by the fact that **our houses have also become classrooms**, so the switch that had to be done is more methodological than physical somehow.

Moreover, the distractions that were part of living together in a space (classroom) are not certainly a problem anymore, but **other distractions** occur, that are typical of being at home, without a control and differently from before, for long periods of time. Therefore, it is important to provide the students with some tips that sit just beside the general **method-of-study and discipline they may already have**, and act like **tips to better find a focus** in researching and studying.

Please give the students the **Tips&Tricks “Focus your study”** sheet and share its content with them.

## Meet the students first



### Focus point

In April, **before the Flipped Classroom** begins, the tutors will have to organize an **informative meeting** with the teachers and the students to...

- invite them to **rush the elearning process** on the platform;
- **show them possible trajectories for self study** and research on the subjects;
- **explain the schedule** of the project and the **Flipped Classroom**.



## Materials and video lessons



### Methodological and theoretical insight

As we have already understood, the flipped classroom is a methodology that involves a phase of **individual study, at home**, which should in any case be inspired by the teacher; although the support of the tutor could open a way of research for the students, it would be useful for teachers to **prepare a selected list of sources to share with the students: they can be websites, blogs, but above all instructive videos on YouTube or Vimeo**.

In the theory of the Flipped Classroom, the teacher should prepare video lessons for the students, however the opportunity for self-study in advance of the discussion with classmates is more important than those who prepare the basic material; in any case, if some teachers wish to proceed by **preparing video lessons**, it will be possible to upload them to the platform and make them available for everyone.

Producing lists of sources or videolessons by teachers could also break the continuity of material coming from a centralized source (the scientific partners) and create a **variety of information supply** that would generate an additional wealth of project content, with positive effects on the student experience.

## The teachers' schedule



Focus point



### STEP 1

Share the study plan and the sources with the students

### STEP 2

Set a time-schedule for home study phase and a mid-term check-up

### STEP 3

Lead the final discussion and provide support to the students

## STEP 1 – The plan and the first phase



Focus point

This first step takes place through a **web (or physical) meeting** of the teacher with the class to discuss:

- the **plan**;
- the **sources** (websites, articles, YouTube and Vimeo channels or videos).



The focus group will last **50 minutes**.

## Communicate the program and supporting the start



### Methodological and theoretical insight

The platform is rich in quality content to refer to and for students these must form the basis of their documentation program, but it's very important that the flipped classroom marks a step ahead from the eLearning activity, pushing them to search for new appropriate content on the web.



## Creating the assignment



### Focus point



It will be up to the teacher to provide the students with a **precise and detailed study mandate**, which makes precise reference to the resources to be considered.

The most efficient way is to share a **written document, a pdf, stating:**

- **the additional suggested sources;**
- **the mission;**
- **the deadlines.**

## 3 strong points for the teachers



### Focus point

1. Let the students **focus on what they really like.**
2. Create an alternative sources list that **covers a wide range of contents.**
3. **Use the platform.**





## The 3 points explained



### Methodological and theoretical insight

#### *Focus on interest*

Do not force the students towards a specific content, your path with them will be a path of **collective construction of meanings and contents**, therefore do not be afraid of the fact that some of them venture into issues towards which you think you do not have an excessive preparation.

#### *Let them have a choice*

The perspective of sustainability and circular economy dealt with by the CiELO project is articulated in different directions: redesigning, reusing, recycling, reducing; for this reason it makes more sense to **structure a suggestion for each of these in-depth trajectories rather than focusing on one or more of them**. This will allow students to have an **unconditioned choice** here too.

#### *Use the platform*

Make sure that the platform is always a **point of convergence**: direct the students to it to learn from the materials in the learn area, but at the same time **send the documents you create to CivicaMente**, in order to be upload them to the platform (and so made **available to all**).

Remember to edit every document in an **official Erasmus+ CiELO template**, carrying all the logos and proper disclaimers.

## Other interesting ideas



### Focus point



#### KEY CONCEPTS

Produce a keywords list to give the students a direction (hashtags are a cool way to do it).

#### MISCONCEPTIONS

i.e. A lot of people is convinced that **plastic is 100% recyclable**  
Focus the attention of the students on common misconceptions and fake news.

## LEARNING OUTCOMES

After studying this subject, the students will definitely be able to...  
Try to engage them by telling what the outcome of their work could/should be.

## Flipping with a framework



### Methodological and theoretical insight



To learn even more about the flipped classroom methodology and to enrich the didactic perspective through a **complete checklist of actions**, we suggest this small but very interesting contribution from the University of Adelaide.



Download it or view it by clicking here.



## Interaction: the mid-term check point



### Focus point

The mid-term meeting with the students, can be a very good occasion to put a foot in the door of the finale activity:

#### *Create a question*

Ask the students to create a secret question regarding the topic their studying.

#### *Deepen the correct answer*

Ask them to become expert in answering and explaining their secret question.

#### *Widen the perspectives*

The rest is important: their focused subject is not the only thing that the project aims to transfer to them, so they should prepare on the whole perimeter of contents of the learn area.

## The mid-term check and its usefulness



### Methodological and theoretical insight

If the very first portion of the individual study can be so to speak “**exploratory**”, subsequently the students will have to progressively approach mechanisms for **finalizing their work**.

It will be necessary to lay the foundations to structure their **ability to relate to their peers**. Obviously, the gateway to such a path is that of an almost playful proposal, or a system that also sets their **competitiveness and curiosity** in motion.



The mechanism we have outlined is functional to create an “**ace**” **question** to be used with classmates within a **relay of questions** that will turn out to be an engaging gamification activity on the one hand (and feasible both in the lesson remote via web-meeting), and on the other a way to structure the reporting activity of the completed study.



## STEP 2 – After the mid-term check-up



### Focus point



In this phase the students will build the final part of their knowledge in the flipped classroom experience. The students will work at home and **prepare their flipped lesson**: this period ranges **from 1 week to 10 days** normally.

## Don't be the map, be the navigator



### Focus point

You have just had a meeting, however this phase has a particular need for your monitoring:

- **set up calls;**
- **ask for intermediate feedback.**

don't make the final date feel too close, but not that far away either.



### Methodological and theoretical insight

Students will have a whole week to prepare the lesson: lucky, right?! Their teachers usually have to be quicker, but they are also **more experienced**: their experience will be decisive in **keeping the students attention focused on the final goal**.

The teachers know their groups in detail and the sensitivities of each individual student: it will be up to their mastery to find the best ways to stimulate each one with the most suitable levers for her/him.



## Progression tips



### Focus point



#### Monitor

For John “monitoring” could mean “everything okay with that thing?”, while for Patrik it would sound more like “did you manage to read key-words at least?”

#### Flash focus

Let a random question “fall” into the regular lessons: it will work as a reminder for the most careless and will be an extra motivation for the most involved.

#### Feedback

**When approaching the date** of the flipped lesson, ask for feedback.

## Sampling among the extremes



### Methodological and theoretical insight

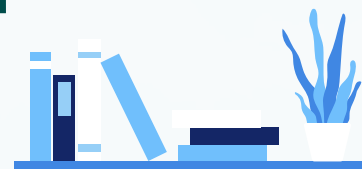
While there are many ways to get a feedback from the students, here we must prefer strategies that prompt participation and engagement: sampling among the extremes can be a good option.

Ask and **compare the opinion of a dedicated student with that of a student who does not seem too passionate, mix, shake well and... see if the magic happens.**

## STEP 3 – Flipped Classroom experience



### Focus point



This final step is the **real lesson**:

the rules for the interaction guarantee the engagement of the students for a **50 minute session**.

## Create interaction – the dream slide



### Focus point

We hope to manage this lesson in a normal classroom and to be soooooo lucky to have a **face-to-face interaction**.

In this case we suggest you to let your discussions be:

Loud

Fussy

Animated

Fun

...after such a **long silence** you will appreciate a little bit of **healthy chaos**.

## Create interaction – the real slide



### Focus point



If your flipped lesson will be held in a web meeting, try to make it as interactive as possible, and while “live” interaction can be noisy, **online it’s wise to be disciplined** and make sure making sure **everyone is talking** and **everyone is being heard**.

# The interactive side of flipping the classroom within the CiELO project



## Methodological and theoretical insight

In the literature there isn't a unique codification of the method for conducting a flipped classroom, or better, there are **as many methods as teachers**.

For this reason, we thought to create one more, to be sure that the students were forced to interact, but above all because they were spurred to study: **we mixed a bit of teaching to the game-theory and sprayed with a touch of the competitive spirit that sits in everybody**.

We suggest the teachers to distribute the **"Tips & Tricks" sheets** before starting the student documentation activity: thanks to these **"exercises"** it will be easier to maintain a good level of interaction among students even without the report in presence.



# The interaction thanks to the "back-to-back questions" exercise



## Focus point



- **Pick a match...** remember the secret question?!
- **Start a fire...** the relay of questions, answer, explanation is contagious.
- **Count the trees left...** yes sir, there will be winners after all.

## Let's see how the thing works

### Back-to-back questions



#### Methodological and theoretical insight



#### First

Randomly select a student within the class: he will be the match that will ignite the powders... This student can choose who to ask the question that he prepared at home (the mid-term secret question) and will be the last to have to answer the question of a classmate.

#### Then

The student will verify if the classmate has answered correctly, but he will also **expand the explanation** for the benefit of the whole class. Now the second student will choose a target, and so on, until the last will address the question to the **"match n°1"**.

#### And in the end

How many trees have been burned by this fire? We will count them only at the end: each student manages a capital of 3 points that he can keep or lose depending on the judgment of the teacher and his peers: 1 point for the interest in the chosen topic, 1 for the quality of the exposure, 1 for the curiosity generated by the question.

At the end of the explanation, the class and the teacher will vote: the teacher can subtract up to two points, the class only 1, if the explanation and the question are excellent the student keeps the full score.

The process **must be documented** and therefore you can either decide to **record the webinar** session or **record the live session in the classroom** through

a video (being careful to try to produce a quality output);  
the materials will be uploaded on the platform.



Along with this kind of evidence, the class should provide **an article about the session** that will be published inside the newsfeed of the platform (along with a royalty free suitable image that must as well be provided by the students' group).



## Ted Talks style interaction

### Focus point

- Set a **countdown** timer.
- Every student has **two minutes**.
- The classroom decides **the head-relator**.
- The teacher decides the order of **the "followers"**.



## Let's see how the thing works – Ted talks



### Methodological and theoretical insight

The purpose of the TED methodology is to make the class **work in synergy** while leaving to each student a space to **personalize the message**. In fact, we'll want to recreate the environment of an informal conference, in which preparation on the subject is important, but **a certain degree of reference to personal experiences** and **local contextualization** is appreciated.



From an operational point of view, the class elects in advance **an initial speaker**, who launches the topic in **two minutes**: the classmates must all be able to continue, to add, to personalize, since the teacher will decide intervention of subsequent speakers, who we call "followers".

Each follower will have the exact same amount of time to speak, then the teacher will give the word to another student, another follower.

The process **must be documented** and therefore you can either decide to **record the webinar** session or **record the live session in the classroom** through a video (being careful to try to produce a quality output); the materials will be uploaded on the platform.

Along with this kind of evidence, the class should **provide an article** about the session that will be published inside the newsfeed of the platform (along with a royalty free suitable image that must as well be provided by the students' group).

## Parametrized Feedback interaction

### Focus point

- Divide the classroom in **two groups**.
- Assign the first group **three secret topics**.
- Let the **group A create the questions**.
- The **group A tests group B** with the questions they edited.
- **Repeat for group B towards group A.**



## Let's see how the thing works

### Parametrized Feedback



### Methodological and theoretical insight

In this activity the teacher's contribution is fundamental: the assignment of the three topics for the questions must in fact **be as precise as possible**; for example, if we were about to assign "reuse" as topic I, without specifying the content perimeter better, we could have as a result the creation of a question to ask the other group that is **too general**, therefore unable to create **gamification, competitiveness and even debate**.

The final purpose of this activity is in fact to be able to generate feedback on focused dimensions, which become **real indicators (parameters) of what the students' adventure of discovery was**.

Also in this case, it will be necessary to **report on the work carried out**, which in the initial description of the project was mentioned as a real report document. It will therefore be necessary to prepare together with the students a document that shows:

- the **class and school identifiers** (number, section or year, ecc.);
- a **brief introduction** (400 characters maximum);
- the **6 topics covered**, and the **related questions developed**;
- two **evaluation chapters written** by the two spokespersons of the groups regarding the effectiveness of this teaching activity.

The file has to saved as pdf on institutional letterhead. It will be uploaded on the platform.

## The aftermath



### Focus point

The flipped classroom activity must **leave its tangible mark**: everything must be **reported properly**.

#### Don't forget to:

- **press rec** during your webinars;
- **rec live** in case your lessons take place in the real classroom;
- **write reports and essays** (for the teachers);
- **write articles and take pictures** (for the students);
- don't forget to have the **photo and video release of every student** (in case you deal with new members after the elevator pitch, please ask them to fill-in and sign the release).



## The newsfeed



### Focus point

- The newsfeed has a precise structure, thus, **for every article** it is important to have also **one or more pictures**.
- The newsfeed can manage videos! If your students are into videos, please **let them create and send their contents**: it will keep the platform alive and let everybody know that the **CiELO project is running and alive**.
- Use the newsfeed as a **trigger to boost the attention of the students**: promote their participation.



## The personal research



### Focus point

Don't forget to collect the **personal reports**:

**1 report for each student** must be edited at the end of the flipped classroom activity, where the student **summarizes their research** and a **brief evaluation** of the activity.

**The reports will be collected by FEEM.**

## Personal report



### Methodological and theoretical insight



At the end of the activity, students shall write a report in an A4 page format, always produced as a pdf file on the CiELO project's headed paper, with:

- **name and surname;**
- **class, institute, country;**
- **specific in-depth topic of her/his own home study;**
- **comment about the activity** done at home;
- **comment about the interactive activity** in the classroom;

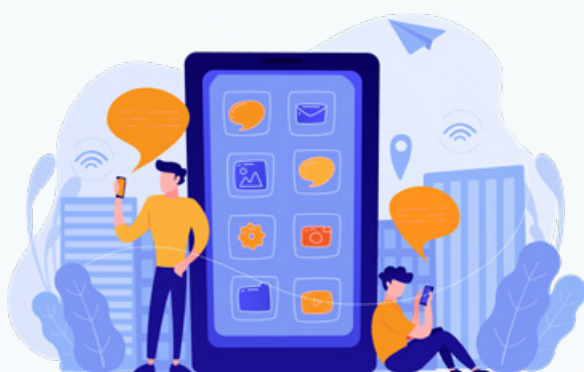
These documents will be archived by FEEM and necessary for the documentation of the didactic impact of the project.



## What will the students find on the platform



### Focus point



1. **eLearning resources** (library, masterclasses).
2. **Source suggestions** edited by the teachers.
3. **Tips&Tricks sheets** for the Flipped Classroom.

## What will the students “give” to the platform



### Focus point

1. **At least 2 exercises** must be completed and documented (i.e. questions + TedTalks).
2. **Articles** for the newsfeed (written or vlogs).
3. The **personal activity and research report**.





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**THANK YOU**  
**for your time**  
**& your help!**

