

Erasmus+ FLeD Learning design for flexible education

Pattern “Self-regulation and prior preparation in online flipped classrooms”

Self-regulation and prior preparation in online flipped classrooms**Keywords¹**

Prior preparation, flipped classroom, online learning, self-regulation, gender perspective, learning pathways, time management.

Characteristics of the course

It is a course of about 25 students of a Master's degree. The subject comprises 3 ECTS credits; 75 hours. The student's autonomous work at home comprises a dedication of 30 hours.

Context and main problem (or motivation) to be solved

This pattern is suitable for any Master's course designed under the flipped classroom (FC) model and in online mode. In this context, students divide their time into prior preparation (consulting resources at home and doing activities) and synchronous sessions, dedicated to solving doubts and demonstrating exercises. However, a major problem has emerged: **students do not know how to organise their autonomous work, and therefore do not prepare the resources properly for the synchronous session. Students simply review the resources provided, but do not know how to manage their time or identify key ideas. If the previous preparation is deficient, it is difficult to dedicate the synchronous session to answering questions and demonstrating the contents.**

Online learning offers possibilities for flexibility of time and place, and it permits synchronous and asynchronous communication through digital technologies. Even

¹ Consult the [FLeD patterns glossary](#) to learn more.

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though there are examples of online learning fully conducted asynchronously, we recommend the implementation of the FC to set up synchronous sessions to resolve doubts and the revised contents put into practice, autonomously at home. In this pattern, we will focus only on the asynchronous prior preparation part of the student. In online FC, self-regulation skills are crucial. Online education students usually are adults, workers with limited time to devote to their studies. In general, students in online education use the domestic space to carry out all activities related to their studies. We know that tasks related to the domestic space—such as caring for other people or maintaining this space—have an important gender bias, which negatively affects women.

Making study time and, above all, the time allocated to prior preparation in the context of FC, depends on the student’s capacity for self-regulation. However, the diversity of profiles in online education must be considered. Online education may hide special needs and hinder equality regarding material resources. Addressing this diversity is an element that allows us to move towards more effective teaching strategies.

Main need to be addressed

Implement strategies to improve students' prior preparation with a focus on self-regulation.

General learning outcomes to be achieved

Demonstrate the ability to independently engage in prior preparation through a personalised learning pathway.

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Solution that could solve the problem and need

We propose to consider four actions, related to two axes, to improve students' prior preparation with a focus on self-regulation:

Axis 1. Equity perspectives:

Action i) Design with a gender perspective

Action ii) Propose diverse learning routes

Axis 2. Skills for self-regulation:

Action iv) Provide time management instructions

Action v) Provide instructions for the identification of key ideas

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AXIS 1. EQUITY PERSPECTIVES

ACTION 1. Design with a gender perspective

• **Pre-class, virtual and asynchronous online**

- **Time management** is an unequal challenge for students in online education. Gender is one of the crucial variables in understanding how time management in the online study of a task is carried out differently by men and women.
- One way of contemplating the gender perspective in the design of the activities for the prior preparation is **to reflect if tasks affect the students differently according to their gender**, what obstacles could appear, and how they are affected differently according to their gender.
- Some strategies that could help to close gender gaps are: 1) **avoid sending material or instructions on Fridays**. Women tend to use weekdays to study, so they can organise their time better if they receive the information earlier in the week, 2) provide **asynchronous collaborative tools** (forums) to discuss or work on prior preparation resources. It has been shown that women use these tools more, and 3) provide **synchronous spaces** (chats) to discuss the difficulties and challenges of time management in prior preparation. Making inequalities visible can contribute to the problematisation of the issues and the search for joint solutions.
- In case the LMS provides **planning tools**, use them to help students organise their activities. Developing planning abilities during the first weeks of the course is fundamental for the success of the following steps.
- Incorporate a **gender perspective** with an intersectional focus in reflections on the design of prior preparation tasks. From the teacher's point of view, adopting an intersectional approach invites you to ask yourself which vulnerabilities are visible, and which are being made invisible. In this way, gender, sexuality, class, ethnicity, and other variables could be considered as axes of inequality that should be recognised as part of the presence of diversity and considered in your designs.

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ACTION 2. Propose personalised learning pathways

• **Pre-class and asynchronous virtual**

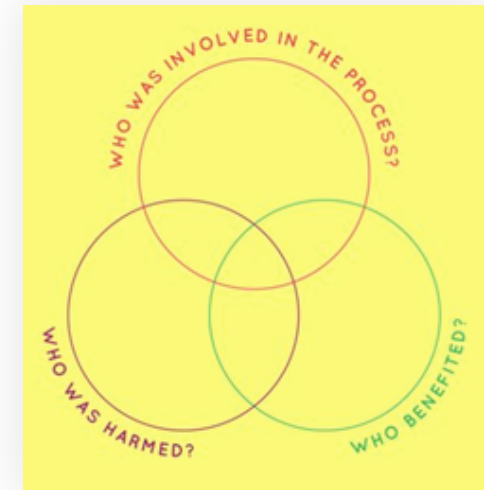
- The FC methodology enables teachers to customise the tasks and activities in order to **adapt** them to the **particular needs** of the students, so enhancing individual and collaborative work (Perdomo, 2016) and personalised and individualised teaching (Mauri et al., 2016).
- Create or search resources for students' prior preparation in FC contexts to ensure efficient synchronous sessions. Proposing diverse **learning pathways** means offering a range of resources and routes where the student makes choices. The student will choose according to her/his interests or motivations.
- **Give "clues"** to the student so that s/he advances in the awareness of his/her self-regulation level and how s/he can improve it. One possible way to carry this out is to incorporate small self-regulation skills tests that students must complete before a subject or module. The test should deliver an autonomous correction that tells the students how to advance in her/his self-regulation and suggests some routes that would help achieve that goal. It is important not to label the students based on the test and to consider that self-regulation skills are not a fixed identity. Therefore, repeating the test at different times of the degree would be necessary.
- The **co-design of learning pathways** is one of the ways in which we promote effective autonomous learning experiences. Digital tools are excellent allies of co-design in the context of online education (see Figure 1 “Representation of the co-design model of learning pathways for self-regulated learning” in References). An active learning context is necessary for co-design. Active learning can also be asynchronous, for which tools can be used to promote written discussion in forums. However, tools to create resources such as concept maps (such as Mindomo, MindMeister, Canva, Coggle) could be conducive to meaningful co-design.

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ACTION 2. Propose personalised learning pathways

- Students learn differently and more or less effectively depending on the formats. It is important to ensure that the **digital resources have different formats**: interactive –ppt, videos with interactive pauses–, audiovisual –videos, talks, conferences–, visual –concept maps, word clouds, ppt–, textual –papers, case studies, reports–, auditory –podcast–, etc. Learning materials can be accessed any time, and these are reported as perceived benefits or key enablers compared with lecture mode (Gardner, et al., 2016).
- Include **adaptations for the different profiles** and special needs of the group: subtitles with appropriate typography, text-to-speech reader, correct colour contrast, correct font size, etc.
- One way to reflect on the impact of teaching strategies on the diversity of profiles is to incorporate in the design stage the following three questions: **Who was involved in the process? Who benefited? Who was harmed?** Answering each question could help design teaching strategies with an equity perspective.



Source: Costanza-Chock, S. (2020). Design justice.

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AXIS 2. SKILLS FOR SELF-REGULATION

ACTION 3. Provide time management instructions

- **Pre-class and asynchronous virtual**

- **Prior preparation activities** are a great opportunity for each student to effectively manage their time. Although online learning allows full flexibility in terms of time and place for learning, prior preparation activities should provide recommendations for each student to manage this flexibility.
- In general, students comply with autonomous work tasks if these are associated with a concrete activity that will be reviewed or assessed. **Associate each prior preparation resource with a short activity** as part of the strategies. This activity may or may not have the character of an assessment activity. Tasks could be quizzes, concept mapping, learning logbooks, interactive activities with self-correction, surveys, etc.
- Each associated activity should have a **space within the LMS for its completion** or for uploading the file with its development. This space should show the student the deadline for the activity, and ideally send reminders a few days beforehand. In the case of activities that cannot be self-corrected by the LMS, the teacher can choose whether to associate this activity with a score or a credential system that contributes to the final approval of the course or module. This can be an excellent strategy to increase student motivation.
- The review of the prior preparation resource should have a **brief instructional text** associated with it that indicates the approximate time a student will take to review each resource and complete the associated activity. This way, the student can anticipate how long each activity will take.

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Provide time
management
instructions**

- In the instructional text, incorporate the **objective expected to be achieved** with each prior preparation resource, from the student's point of view. Also, there should be recommendations that help the student make decisions on how to prioritise the review of each resource.
- Make **all material available** at the beginning of the course or module. In this way, each student can progress according to his or her own pace and possibilities. Thus, the principle of the flexibility of online education is ensured. It must be taken into account that some students may be overwhelmed by all the open-source materials from the start. One recommendation is that only basic resources remain available, while supplementary resources and instructions are gradually provided.
- The **deadlines** for each activity will help students maintain a steady pace and strengthen their capacity for self-regulation. It is recommended that the deadline be agreed with the class group and that, as much as possible, it responds to the different contexts and needs of the group. Also, a deadline in this scenario should have the possibility to be modified and compromise the development of the rest of the activities.
- Arrange the resources for prior preparation in **clearly labelled folders** in the LMS, with a simple nomenclature or in a logical order and number the resources. If there are many resources, create sub-folders. The order and sequential structure could benefit students who get overwhelmed and do not know where to start looking at the resources. This should not be an obstacle to prior preparation resources being designed with diverse routes in mind.

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- o Organise the resources as follows: 1) **Core Resources** (required) and 2) **Supplementary Resources** (linked to Personalized Learning Paths). However, the organisation of the resources will depend on the objectives of the subject or module.

ACTION 4. Provide instructions for the identification of key ideas

• **Pre-class and asynchronous virtual**

- o By identifying the **key ideas of a resource**, the student demonstrates an understanding of the content. However, identifying the key ideas of a resource is not easy. Despite having an adult student profile, in many cases, students do not have the necessary skills to perform this task individually and autonomously.
- o All the resources provided for prior preparation should include the activity of **identifying key ideas**. This will ensure that the student has attempted to identify these ideas and that they do a thorough review of the resource.
- o There is no right way to identify the key ideas in a resource. Some of the tasks that you can request for the student to identify the ideas of a resource are: **make the topic known** (it can be through a headline in a few words), **accentuate at least two essential details, highlight explanatory details**, notice how the essential details are related, and/or infer the main idea. It is also useful to create a summary in the student’s own words and reflect on how it links to what is expressed in the resource. The summary is not necessarily a written text. To that aim, it would be advisable to use **technological tools** that allow the creation of summaries in audio (e.g., Vocaroo, Chirbit, Online-convert-), video (e.g., Wideo, Clideo, Camtasia), infographics (e.g., Genial.ly, Piktochart, Visme), or concept maps (e.g., Mindomo, MindMeister, Canva, Coggle).

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ACTION 4. Provide instructions for the identification of key ideas

- In relation to ACTION ii, offer **different options according to the profiles** of your students. For the choice, the result of the self-regulation test will be very relevant. The result should be an input that helps the student choose the formats and modality to identify key ideas.
- In each course for students, there will be **different self-regulation profiles**. However, we recommend considering at least three profiles for the design of the strategies: (i) high self-regulation, (ii) low self-regulation and (iii) no self-regulation.
- Each resource should have **different adaptations in its instructions according to each profile**, but with the same aim: that students are able to identify the key ideas of each resource.
- For **profile (i) a general instruction** could be sufficient, asking to analyse the entire resource and identify the main thread or axis through the writing of a paragraph, or the recording of an audio or video. **Profile (ii)** could benefit from an **instruction broken down into different points** or sub-themes, asking them to answer specific questions, which in a sequential order achieve a comprehensive understanding of the resource. **Profile (iii)** will need **instructions to establish criteria** (axes, dimensions, description, definition, etc.) and ask for answers. For this, it is very relevant to incorporate a table or outline for the student to complete (see example 1 of personalisation in Examples and related patterns).

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Challenges		Solutions
It is important to consider the students' workload when proposing strategies for prior preparation. Several courses may require the students to prepare, simultaneously, at home before synchronous sessions.		However, if the guidelines provided by the teacher do not consider adequate time for the student to combine all the activities of the different courses, it will affect their learning and ability to take advantage of each resource.
Adult students may have significant gaps in their use of digital technologies .	As far as possible, inquiring about the diagnosis of the technological skills of your students will give you valuable information about the possibilities for introducing interactive elements or ask for more complex tasks.	
Connectivity and technological devices are essential prerequisites for online study .	Good quality allows students to download resources, watch videos or participate online. This will be very relevant when introducing a greater variety of digital resources. Inquiring about students' connectivity conditions and device access would be a valuable diagnostic element to ensure efficient prior preparation.	
A gender-sensitive design and diversity of student profiles should be aligned with institutional gender equality policies , or in case of absence, with international guidelines.	Therefore, it would be desirable to ask for a new name for transgender people , establish rules to ensure that the online environment is a safe space , incorporate gender-sensitive indicators in the curriculum, and in the definition of the theoretical references of the subjects, consider the plurality of genders , among others.	

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Examples and/or related patterns**• Related patterns**

- o [Key decisions for an effective flipped classroom.](#)
- o Preparation material check (Köppe & Portier, 2014)
- o Example 1. Personalisation of flipped classroom design for prior preparation according to self-regulation profiles.

Reading a text*

Profile (i) high self-regulation:

Please read the following text:

Fraser, Nancy (1997). «From redistribution to recognition? I say it back to justice in a post-socialist era». In: Justitia Interrupta. Critical reflections from the justicialist position. Santa Fe de Bogotá: Siglo del Hombre y Universidad de los Andes, p.21- 26.

Answer the following question:

1. What are the main differences between redistribution and recognition according to the author? Develop a comparative example to illustrate the differences.

Profile (ii) low self-regulation:

Please read the following text:

Fraser, Nancy (1997). «From redistribution to recognition? I say it back to justice in a post-socialist era». In: Justitia Interrupta. Critical reflections from the justicialist position. Santa Fe de Bogotá: Siglo del Hombre y Universidad de los Andes, p.21- 26.

Answer the following questions:

1. How does the author define the concept of redistribution? Give an example.
2. How does the author define the concept of recognition? Give an example.
3. What are the differences between the concept of redistribution and recognition?
4. Compare the examples you've given.

Profile (iii) no self-regulation:

Please read the following text:

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Fraser, Nancy (1997). «From redistribution to recognition? I say it back to justice in a post-socialist era». In: *Justitia Interrupta. Critical reflections from the justicialist position*. Santa Fe de Bogotá: Siglo del Hombre y Universidad de los Andes, p.21- 26. Below is the following conceptual table:

Table 1: Dimensions and concepts on types of injustice and solutions based on Fraser's proposal

Axis	Dimensions	Concepts	Description
Injustice			
Solutions (policies)			

Finally, search the internet for examples for each type of injustice and for each type of solution.

* Author: Professor Enrico Mora, Autonomous University of Barcelona.

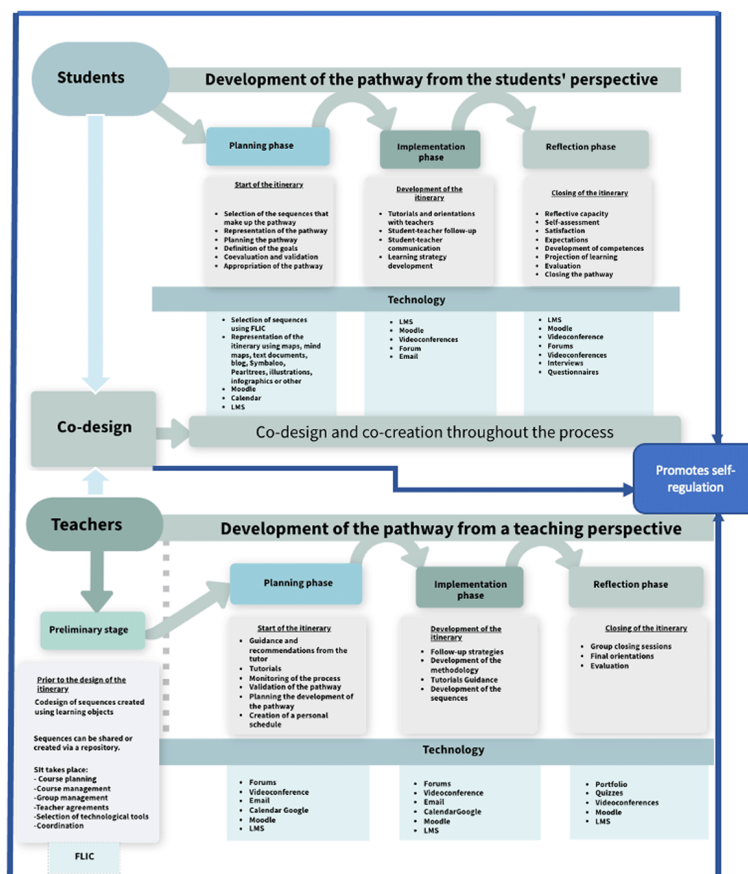
• Related references

- o Köppe, C., & Portier, M. (2014). Lecture Design Patterns: Improving the Beginning of a Lecture – Proceedings of the 19th European Conference on Pattern Languages of Programs, EuroPLOP'15 (July 2014).
- o Sahin A., Cavlazoglu, B., & Zeytuncu, Y. E. (2015). Flipping a College Calculus Course: A Case Study. *Educational Technology & Society*, 18(3), 142–152.
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- o Figure 1: “Representation of the co-design model of learning pathways for self-regulated learning”. In Villatoro, S. & de-Benito, B. (2022). *Self-Regulation of Learning and the Co-Design of Personalized Learning Pathways in Higher Education: A Theoretical Model Approach*. *Journal of interactive media in education*, 1.
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