FERTILE Community Platform
User's Guide

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1. Introduction

The aim of this user guide is to introduce you to the "FERTILE" community platform (CP). This platform is the meeting point for teachers interested in creating learning designs that promote Computational Thinking by combining Educational Robotics (ER) and Arts.

The "FERTILE" platform will help you connect with other educators and collaborate with them in designing Artful Educational Robotics projects following the "FERTILE Design Methodology"".

This user guide is structured in several sections, each of which corresponds to the main functions of the platform. The aim of the guide is to show you how to use it to communicate with other teachers, to chat with them, to (co-)create and edit Artful Educational Robotics projects and to share them with your students.

2. User Registration

First of all (Figure 1), you need to register into the FERTILE Community Platform (CP). Please, go to fertile.gsic.uva.es. You can change the language of the platform (although we will use the English version in this document). Then, follow the "Sign up" process to create your FERTILE account.

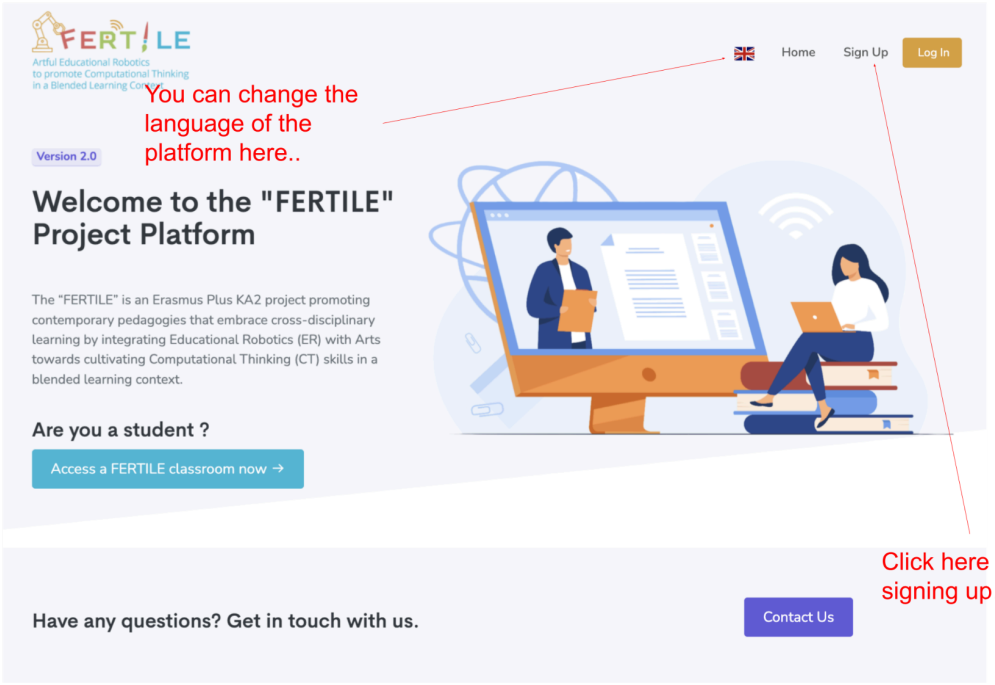

Figure 1. Home page for the FERTILE CP.

During the registration process (Figure 2), you can introduce your basic personal data, your teaching experience, the educational levels in which you have experience.... and you can also select whether you consider yourself more experienced in Art-related topics, or in Educational Robotics (ER).

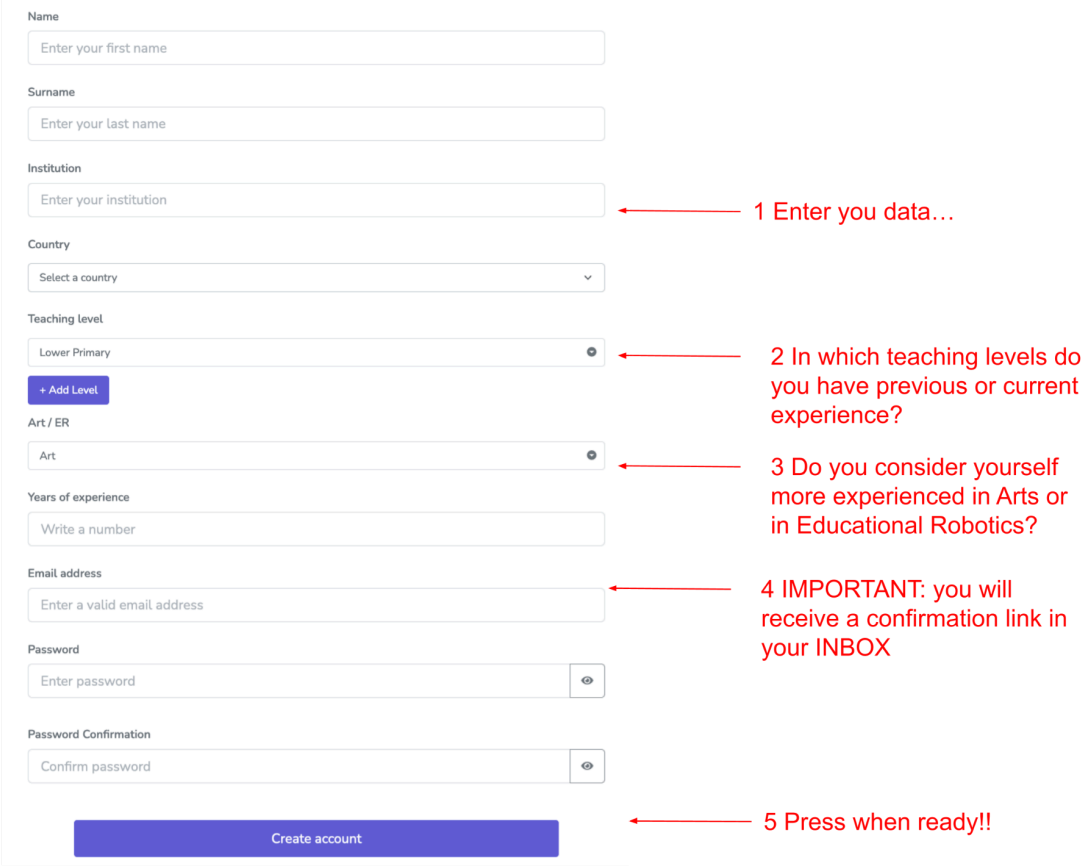

Figure 2. User Registration page.

When you press "Create account" you will be presented with the warning message shown in Figure 3. A confirmation email message will be sent to your email account (see an example in Figure 4). Please, do not forget to check your SPAM email folder in case you don't receive the confirmation message.

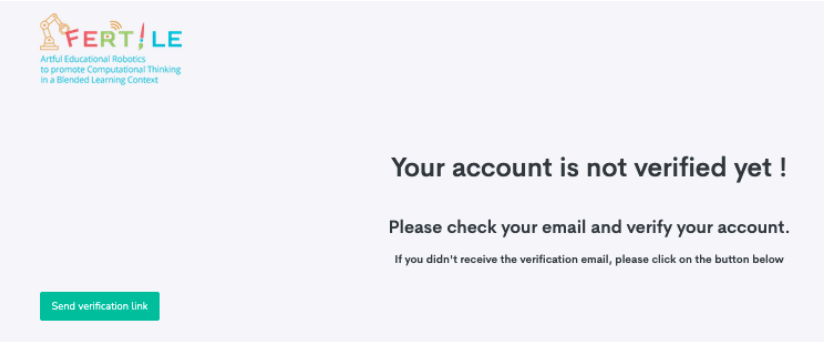

Figure 3. Account not verified yet.

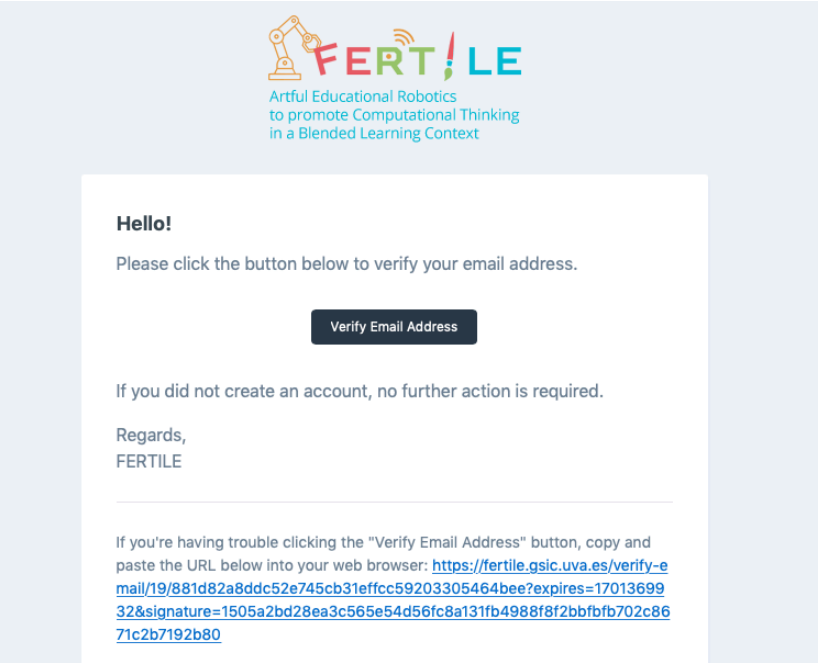

Figure 4. Example of a verification email message for the registration process.

Once you have completed the registration process, you will be redirected to the home page of the Community Platform. You are now a new member of the FERTILE Community!

3. User Profile and Platform Settings

From the home page of the FERTILE CP you can change your personal data and settings by clicking on the top-right part of the screen (see Figure 5).

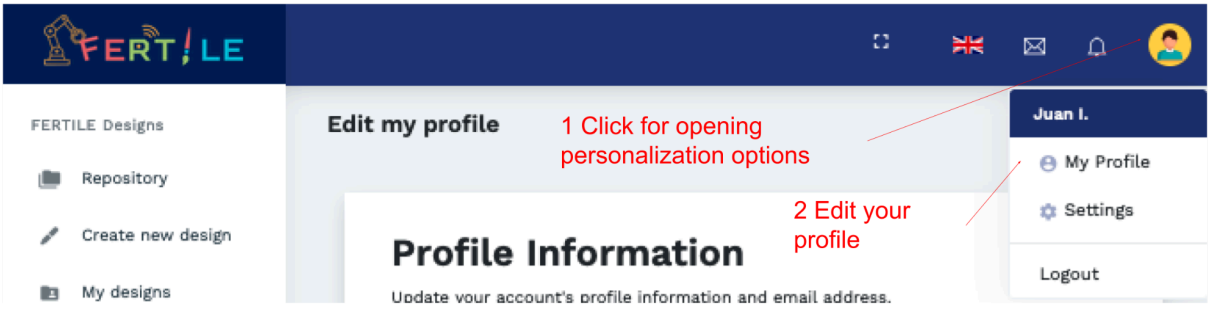

Figure 5. Accessing personalization options (user profile).

Figure 6 shows the options you have for configuring your personal profile. You can select a photo for your profile, indicate your country, the preferred language for the FERTILE CP, and the languages in which you might collaborate (the FERTILE CP gathers teachers from several countries!). Click on "Save" when you have finished.

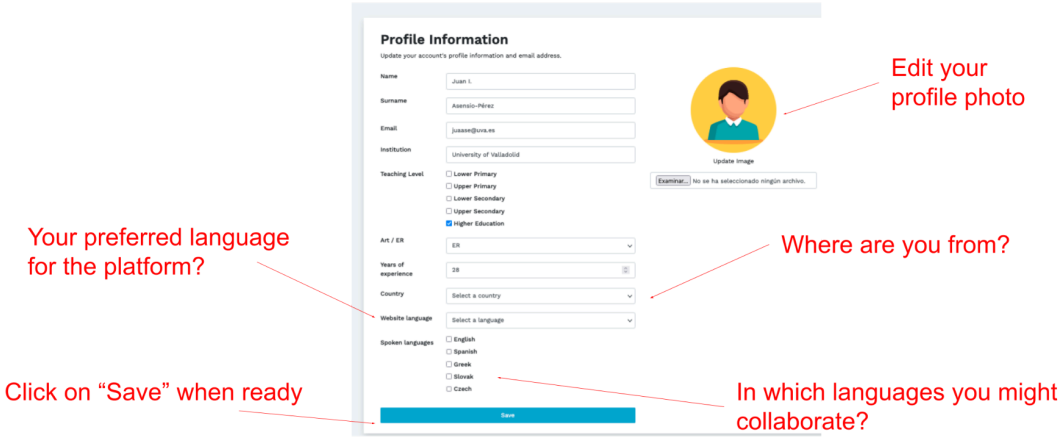

Figure 6. Editing the user profile.

By accessing the platform settings page (Figure 7) you can decide when you want the FERTILE CP to send email messages to you (Figure 8). By default, no message will be sent… but you can change that on this page at any moment. Email messages may help you be aware of what is going on at the FERTILE Community! Click on "Update email setting" when ready.

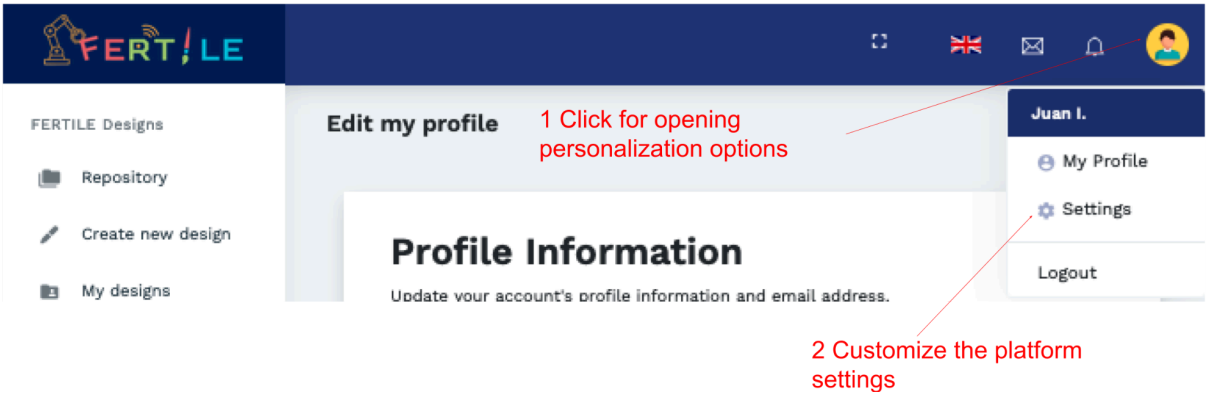

Figure 7. Accessing personalization options (platform settings).

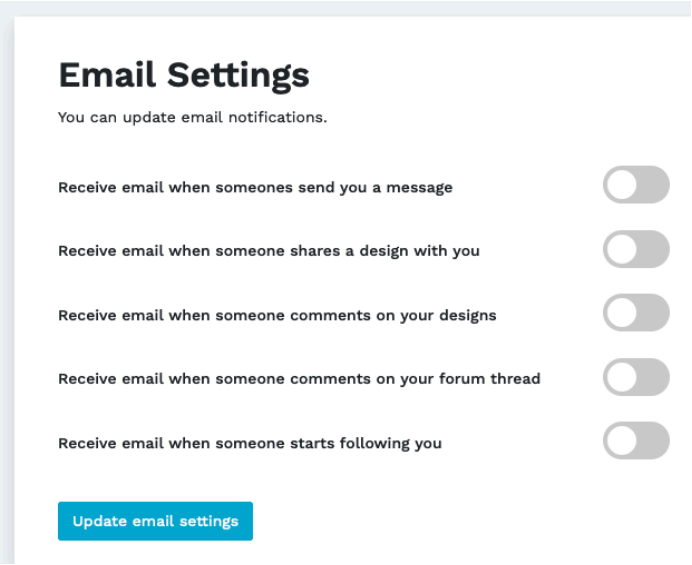

Figure 8. Email settings page.

4. Community

4.1 Teachers

As you can see in Figure 9, on the left side of the screen, the platform has a toolbar that is the main way to navigate the platform. Let us start by selecting “Teachers” from the toolbar to see that the platform provides a list of teachers who are members of the FERTILE community.

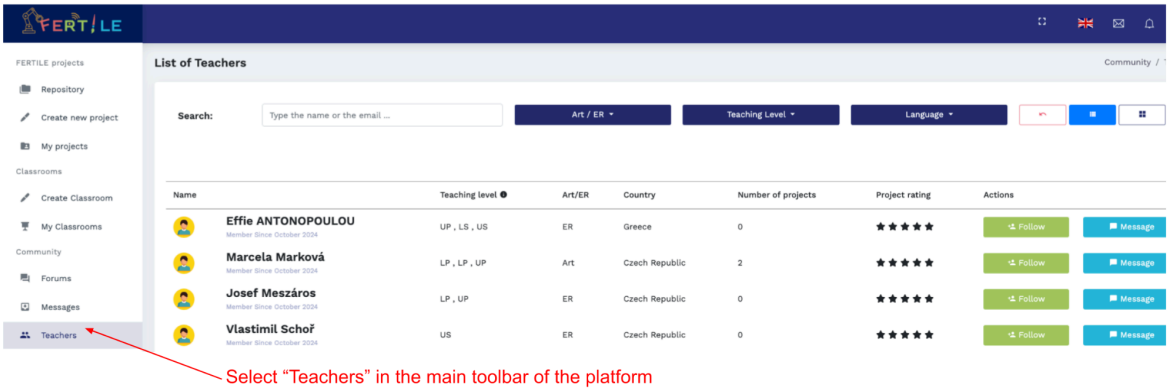

Figure 9. Accessing the list of teachers in the FERTILE Community Platform..

Figure 9 shows the result of the "Teachers" selection from the platform toolbar. It is a list of all users (teachers) registered on the platform. The teachers are listed according to their registration date. You are also provided with basic information about the teachers and have the possibility for searching and filtering, as well as taking certain actions regarding the selected teachers.

Specifically, the list shows for each teacher the levels of education they teach, their specialization in Educational Robotics or Art, their country, and the number of projects they have publicly available in the community. You are given the option to search for teachers by name or email. You can also filter teachers according to their specialization in Educational Robotics or Art, and/or their country, and/or the level of education they teach. Finally, the actions you can take are to "Follow" teachers to receive a notification when they publish a new project on the platform and/or start a conversation with them by sending them a "Message".

When you select a teacher from the list you can see the projects (s)he has published in the platform community. Figure 10 shows an example of the information you can get about a teacher.

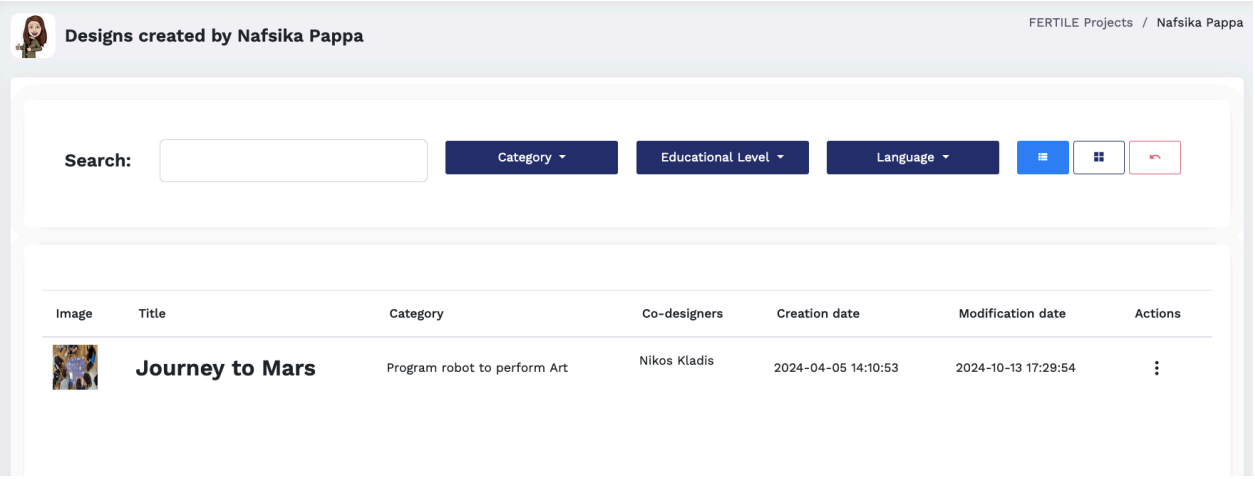

Figure 10. Information about the projects that a teacher has made publicly available.

4.2 Messages

If you want to find and contact a specific teacher, you can type her/his name in the search textbox, and then either "follow" that teacher (you will be informed when that teacher has published a new project) or send a message to her/him. This process is illustrated in Figure 11.

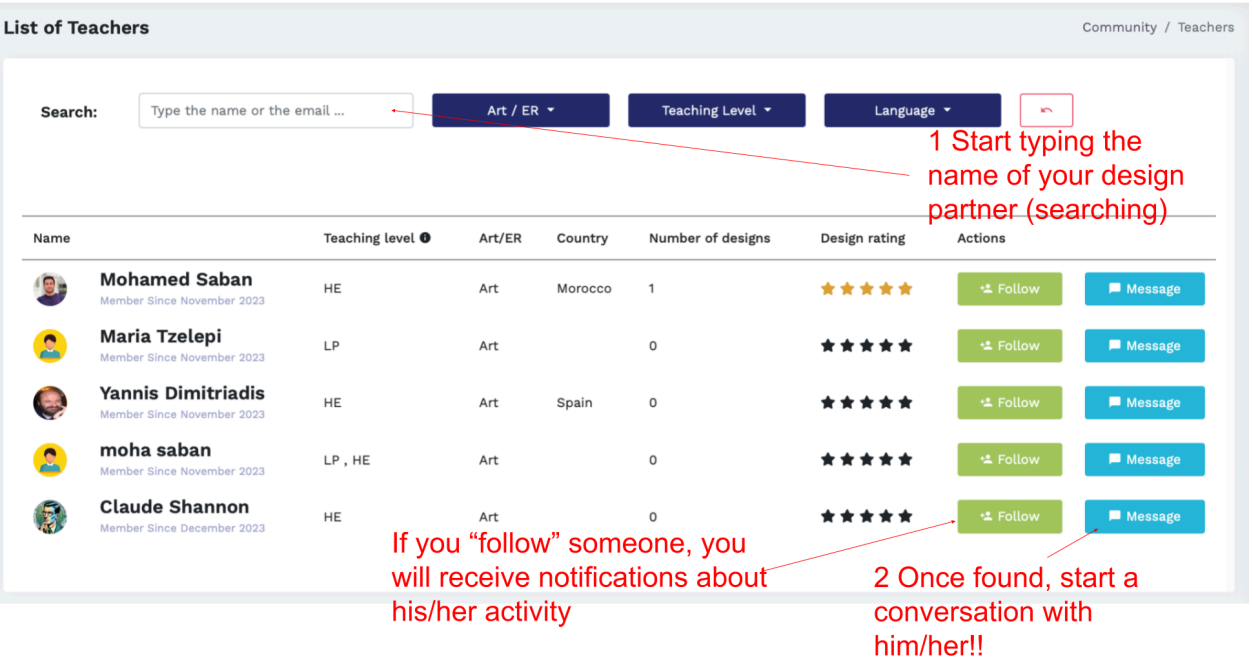

Figure 11. Searching for a teacher to "follow" her/him and/or send a message.

When you click on the button "Message" corresponding to a certain teacher then a pop-up window appears, as in Figure 12, in which you can compose your message.

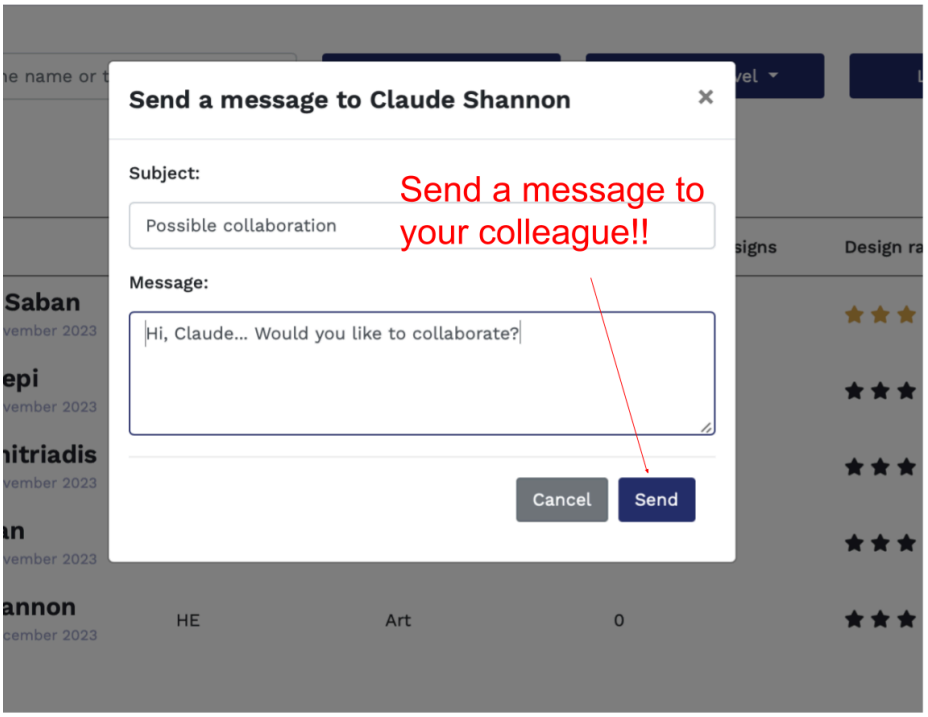

Figure 12. Sending a message to a member of the FERTILE Community.

The top toolbar of the Community Platform will inform you about the reception of message (see Figure 13).:

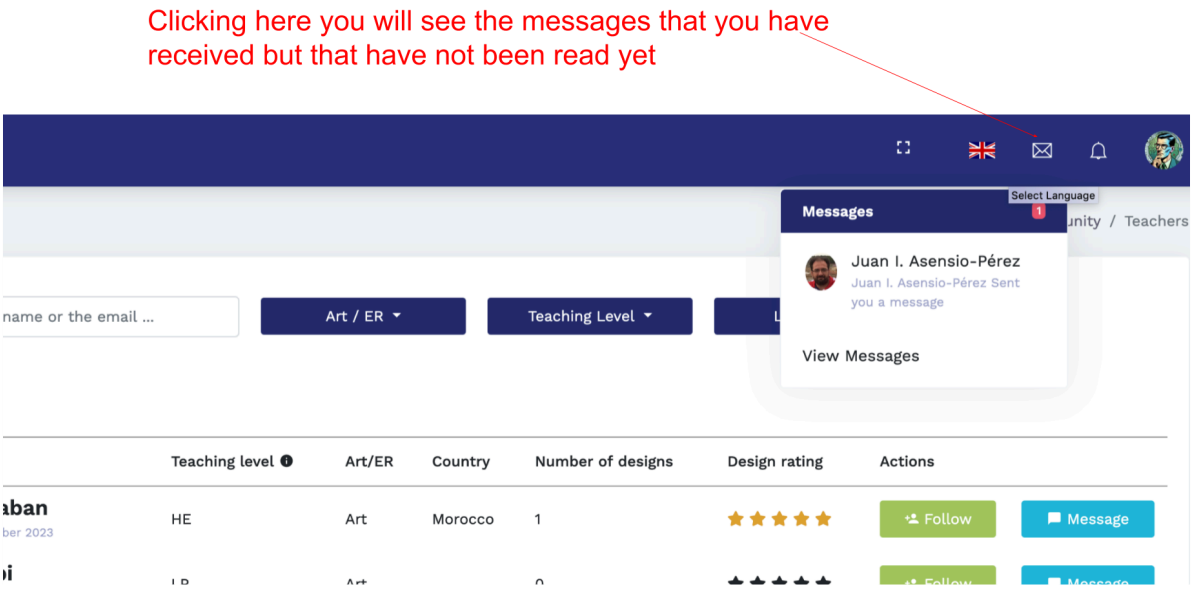

Figure 13. Reception of messages.

Alternatively, as shown in Figure 14, you can select "Messages" from the platform's toolbar to see your list of messages. You can search for a message you have received, reply to messages, or compose a new message.

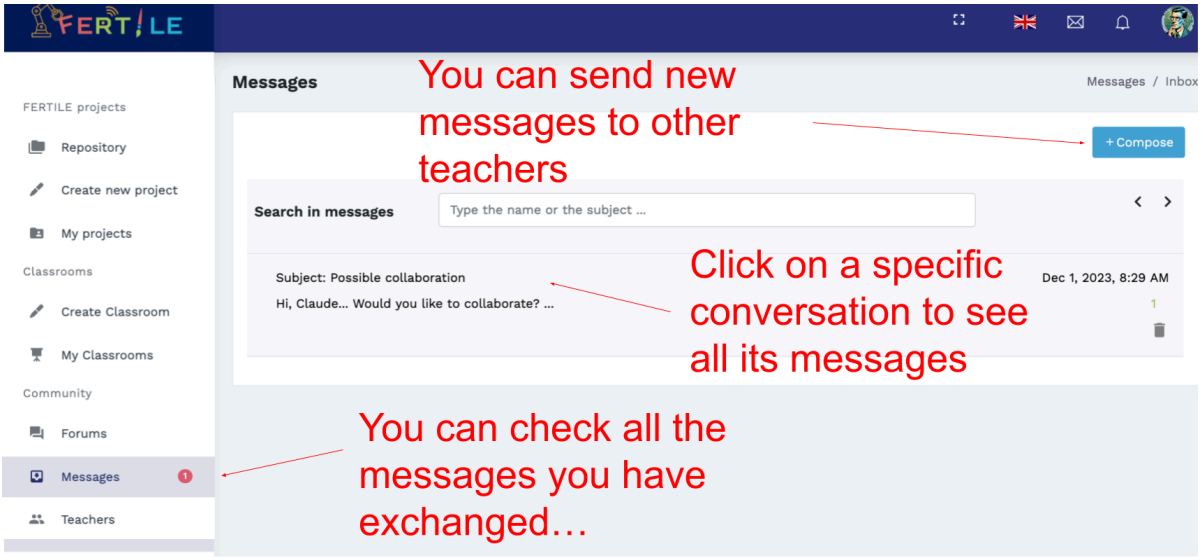

Figure 14. Messages page.

When you select a specific message from your message list, as shown in Figure 15, you can view the entire thread of messages you have exchanged and send a new reply.

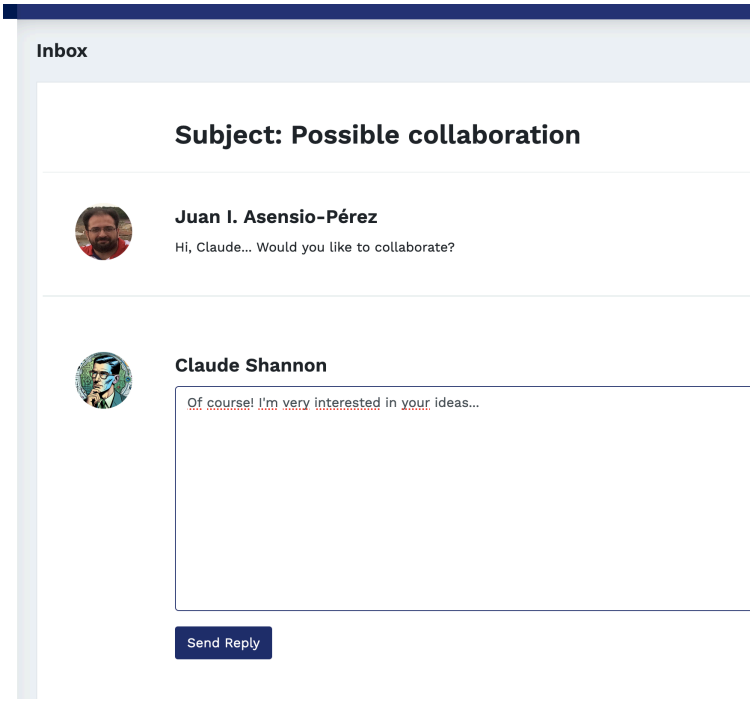

Figure 15. Reading messages.

4.3 Forums

To contact teachers who are users of the platform you can also use the Forum feature as shown in Figure 16. Selecting "Forums" from your toolbar displays a list of forums created on the platform. You can search for specific topics and/or filter the list of forums by category (according to the Educational Robotics or Art course) and/or language. Clicking on a forum will take you to the list of its messages.

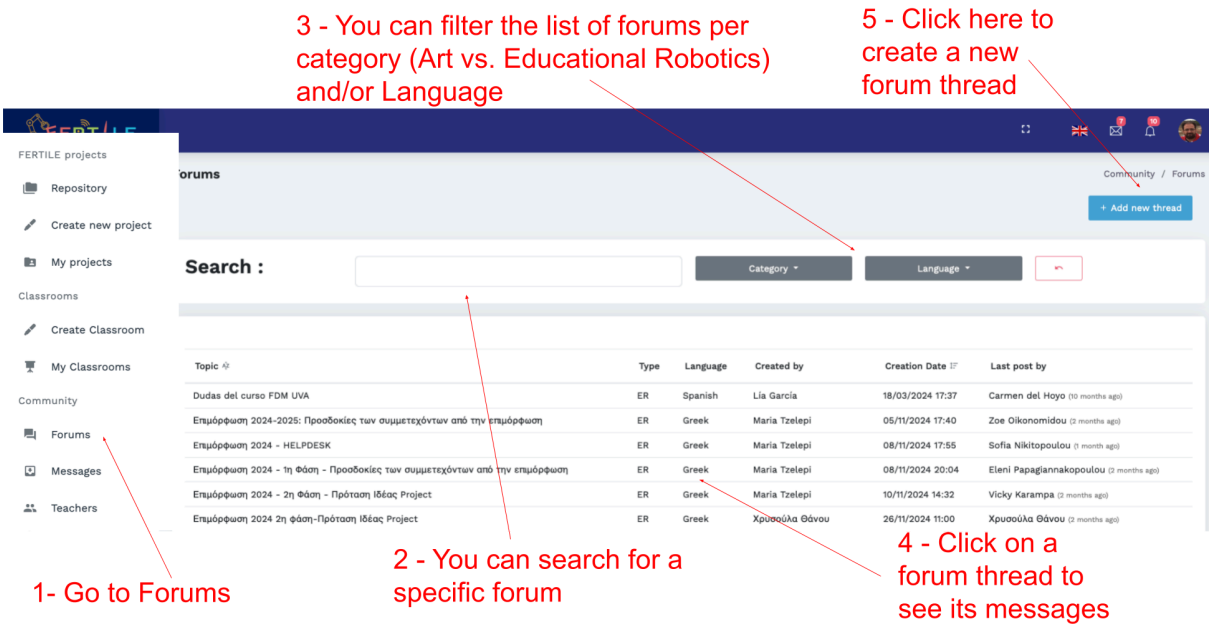

Figure 16. Forums page.

By selecting the "+Add new thread" button you can create a new forum. In Figure 17 below you can see an illustrative screenshot showing the creation of a new forum. Notice that you can define the topic of the forum, its category (Educational Robotics or Art) and the language in which the communication will take place. In the text, “rich text” edition is supported and you can insert formatted text, hyperlinks and images to communicate your message more effectively.

When you want to participate in a forum, you select it from the list and, on the page that appears, you can add your own comments, reply to an existing comment or approve a comment with a “like", as shown in the example of Figure 18.

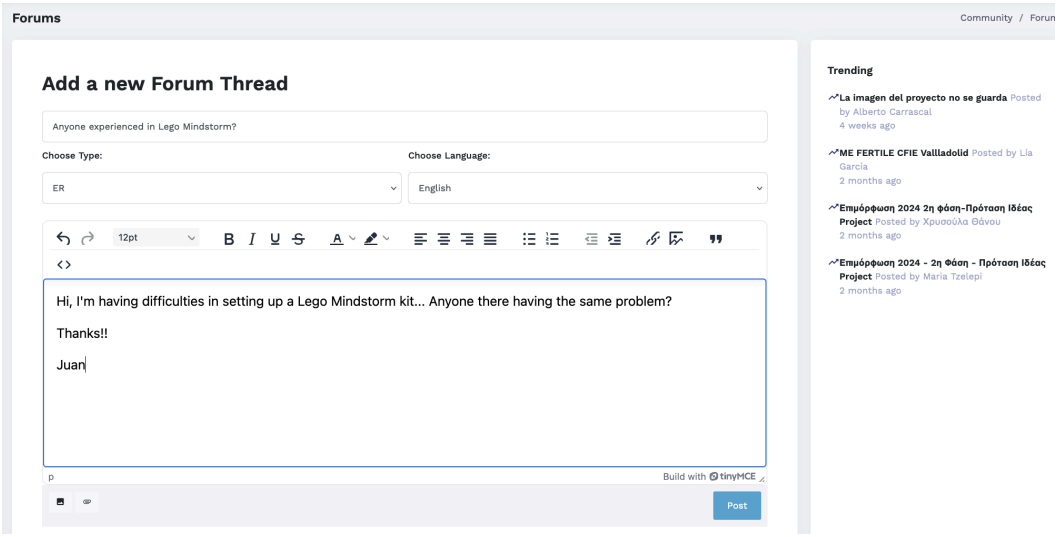

Figure 17. Creating a new Forum Thread.

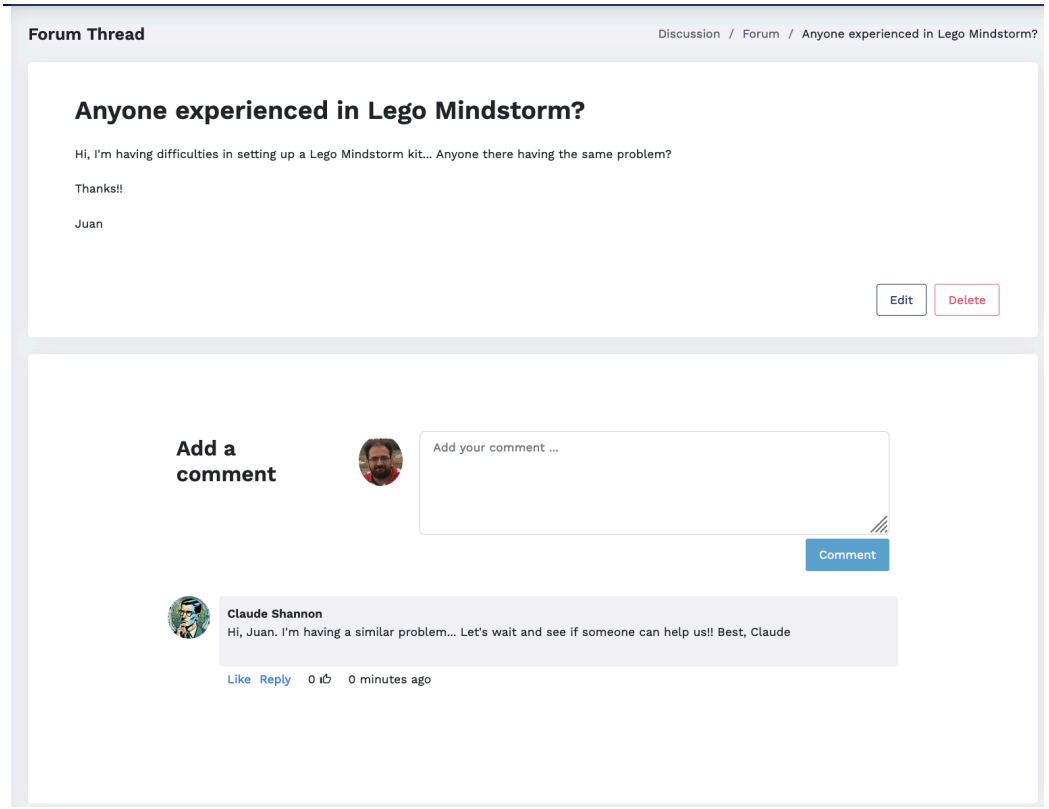

Figure 18. A Forum thread.

5. FERTILE PROJECTS

5.1 Repository

As shown in Figure 19, selecting "Repository" from the toolbar displays a list of all projects created on the platform and made public by their creators. The projects are listed according to their creation date, starting from the most recent.

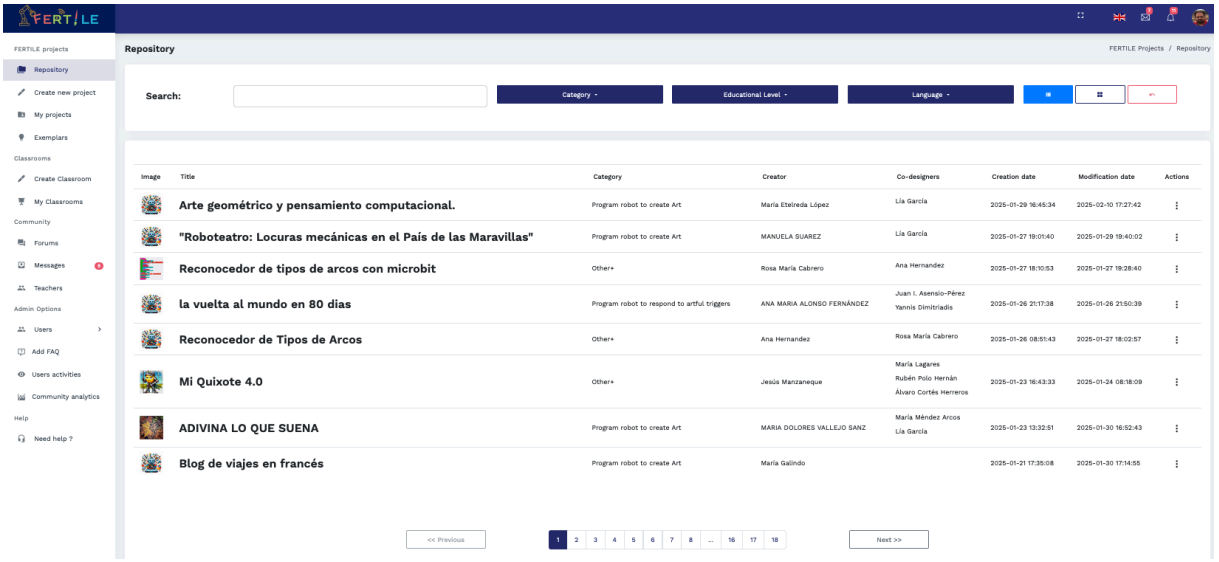

Figure 19. Accessing the platform's Repository for an overview of the projects that are publicly available to the FERTILE Community.

Figure 20 shows how you can search for a project by its title. Also, you can filter projects according to the "Category" they belong to, the "Education Level" they are addressed to, and the "Language" in which they have been developed.

Recall that the project categories refer to the four proposed project categories of the FERTILE design methodology which are:

- Program robot to create Art
- Program robot to perform Art
- Create Artful Robots
- Program robot to respond to artful triggers

Figure 20 also shows the basic information available for each project that appears in the list of projects listed in the Repository. You can see the featured image set by the project creator, the project title, the project creator, and the project creation date.

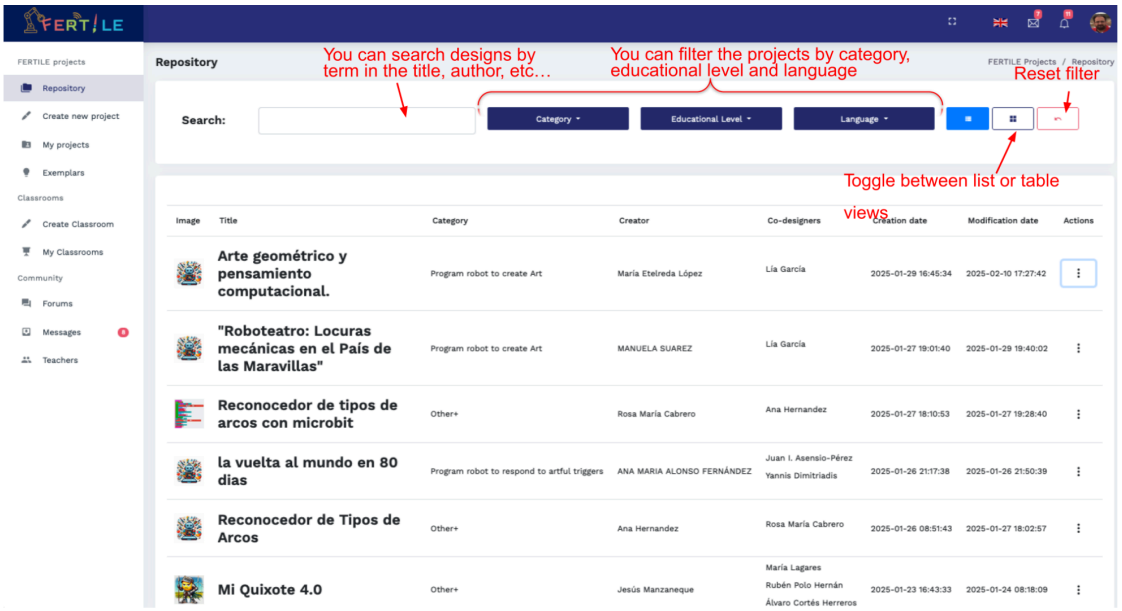

Figure 20. Searching and filtering the list of projects in the Public Repository of the platform.

Finally, as shown in Figure 21, the actions you can take on a project of the Repository are "View" to view the project, or "Duplicate" to create your own copy of the project and modify it at will.

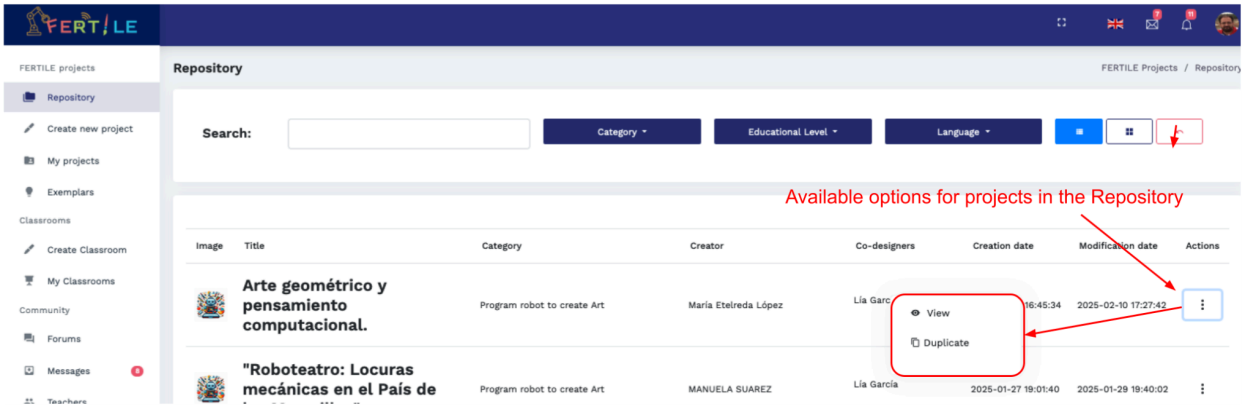

Figure 21. Available actions for projects listed in the Repository.

As shown in Figure 22, selecting "Exemplars" from the toolbar displays a list of projects that the FERTILE project team suggests you consider as examples. The actions you can take on these projects are to view and/or create your own duplicates of them.

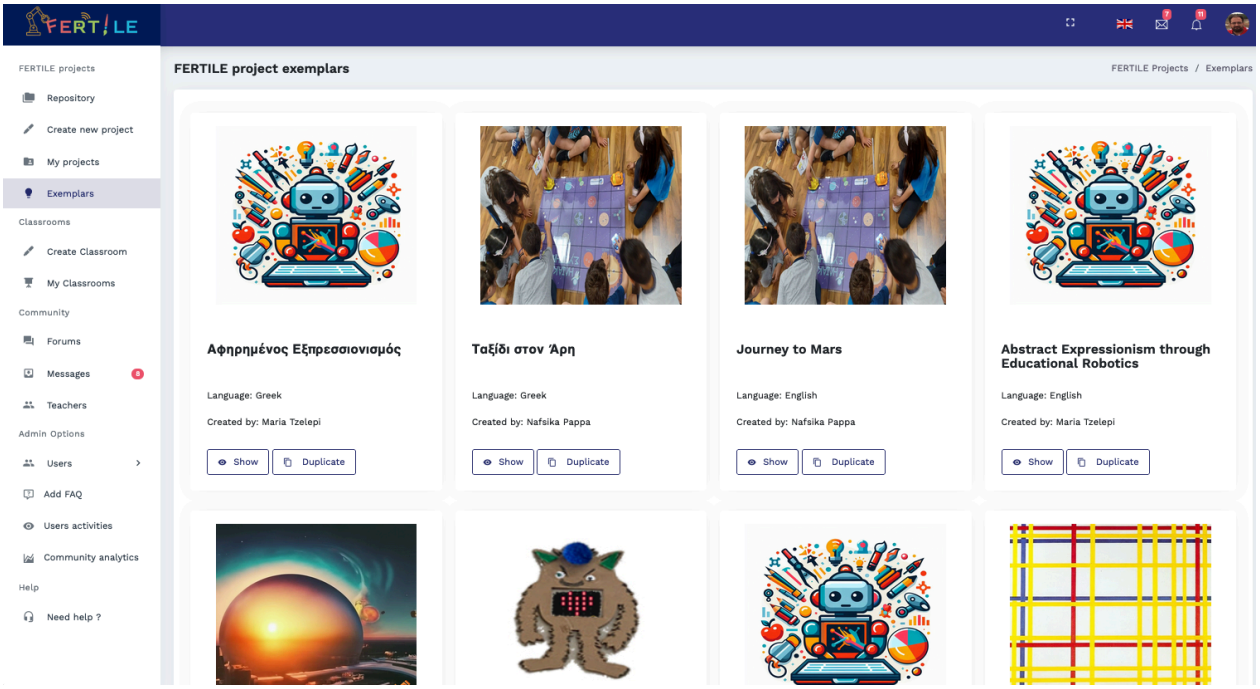

Figure 22. Accessing the “project exemplars” in the FERTILE CP.

5.2 Creating a new project

The most creative functionality of the FERTILE community platform is the creation of an Artful Educational Robotics project. As shown in Figure 23 you can select "Create a new project" from the platform toolbar to access this functionality. When creating a new project, or editing it, you are provided with the options to "Save" the project and continue editing it, "Save and exit" from editing it, and "Cancel" the editing you have done until the last time you saved it. Also, you will find the vertical scroll bar useful to move around in all parts of your project.

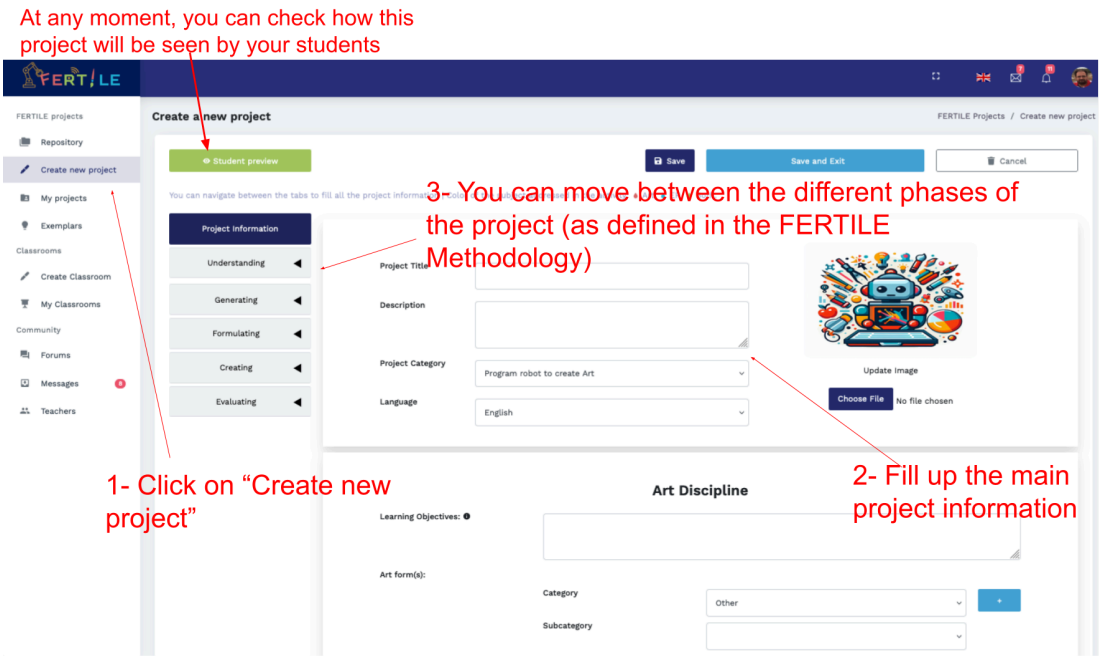

Figure 23. Creating a new project.

The representation of the FERTILE design methodology in project creation and edition

The creation and edition of projects on the FERTILE community platform is based on the FERTILE design methodology. The platform visualizes and facilitates the composition of interdisciplinary projects that combine Educational Robotics with Arts based on the methodology. Figure 24 represents an overview of the FERTILE learning design methodology.

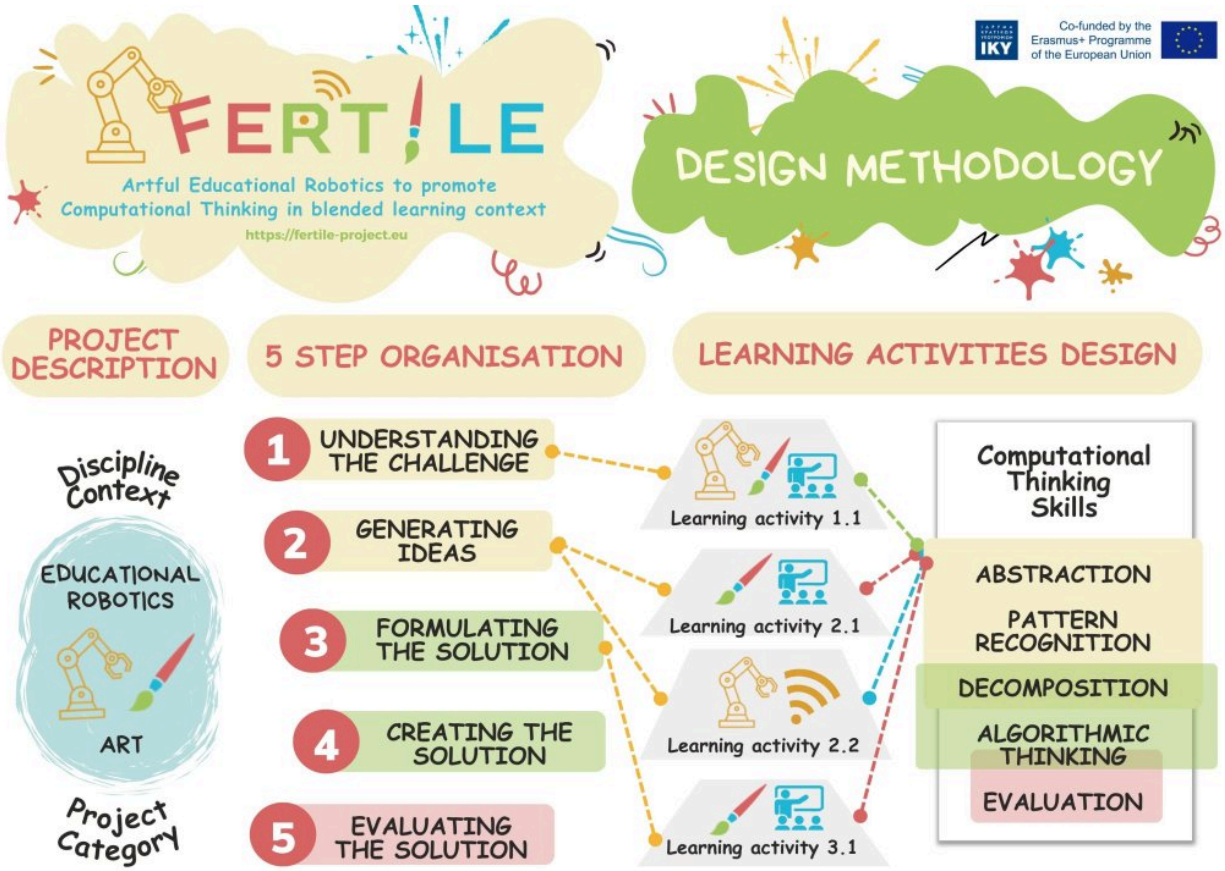

Figure 24. Overview of the FERTILE Design Methodology.

Project Description

As shown in Figure 24, the creation of a project following the FERTILE learning design methodology starts with the general description of the project. Therefore, the platform supports teachers to provide the "Project Information". The information of a project consists of 4 sections.

The 1st section, illustrated in Figure 25, contains the general context of your project. You are invited to provide a title and a brief description of your project. You can also select the category of your project according to the FERTILE design methodology and the language of your project. Finally, you can upload a representative image for your project.

Take into account that the “project category” enhances the description of the interdisciplinary nature of your project in relation to the subjects of Educational Robotics and Art. It refers to the 4 proposed project categories of the FERTILE design methodology which are:

- Program robot to create Art
- Program robot to perform Art
- Create Artful Robots
- Program robot to respond to artful triggers

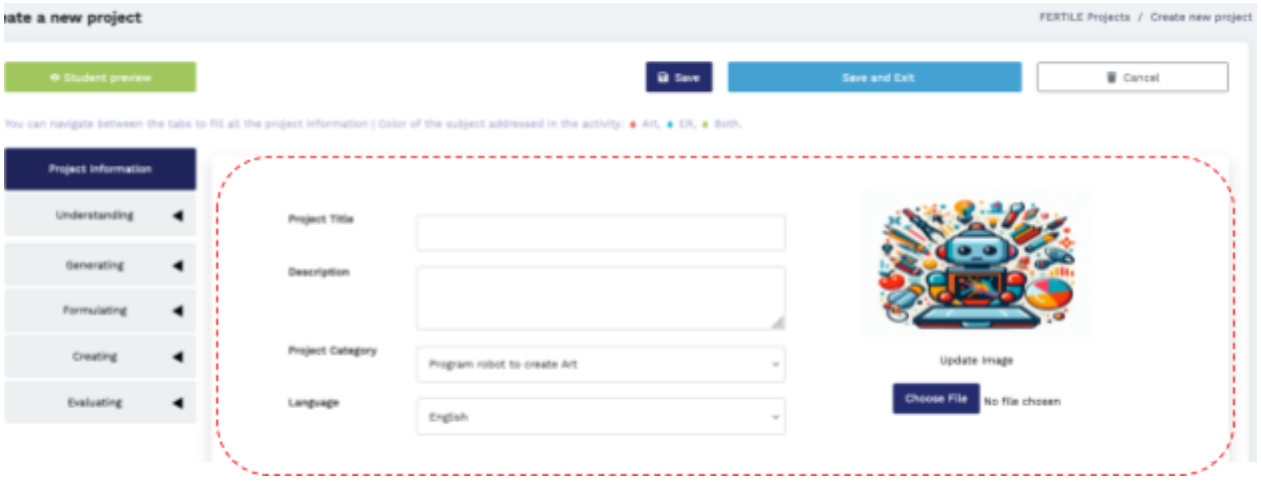

Figure 25. Project Information (1st section): title, description, category and language.

Next, the second section of the “Project Information”, illustrated in Figure 26, includes a description of the context of the art subject in your project. You are asked to describe the learning objectives of the art subject and identify the forms of Art. You have the option of identifying one or more forms of Art. Your description is facilitated by the following predefined categories and subcategories of Art.

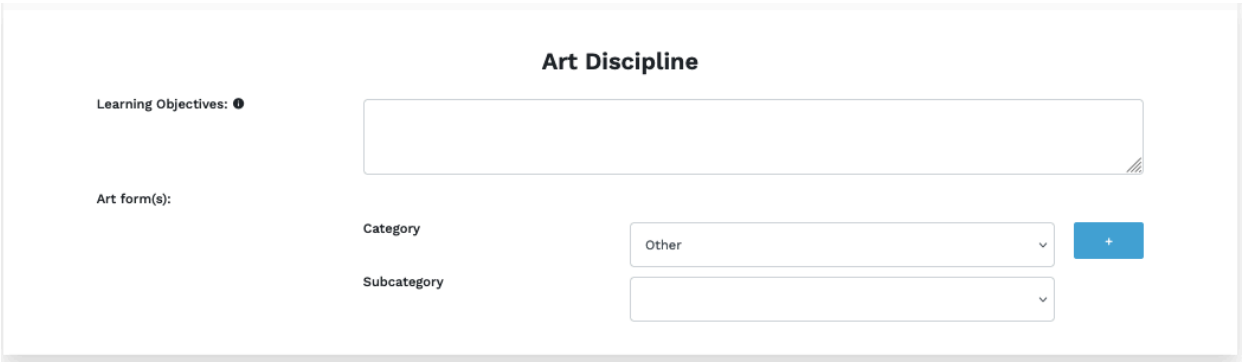

Figure 26. Project Information (2nd section): learning objectives and Art form(s).

Art Category	Subcategory
Visual	Arts and Crafts, Drawing, Animation, Painting, Other
Performing	Dance, Music, Theatre, Other
Literature	Drama, Poetry, Storytelling, Other
Other	N/A

Similarly, section 3 of the "Project Information", illustrated in Figure 27, includes a description of the educational robotics discipline in your project. You are invited to describe the learning objectives of the Educational Robotics subject area. You may also describe the construction and programming of the robot you will use. To describe the technical requirements of your robot, you are given the opportunity to choose from the following technologies and construction elements:

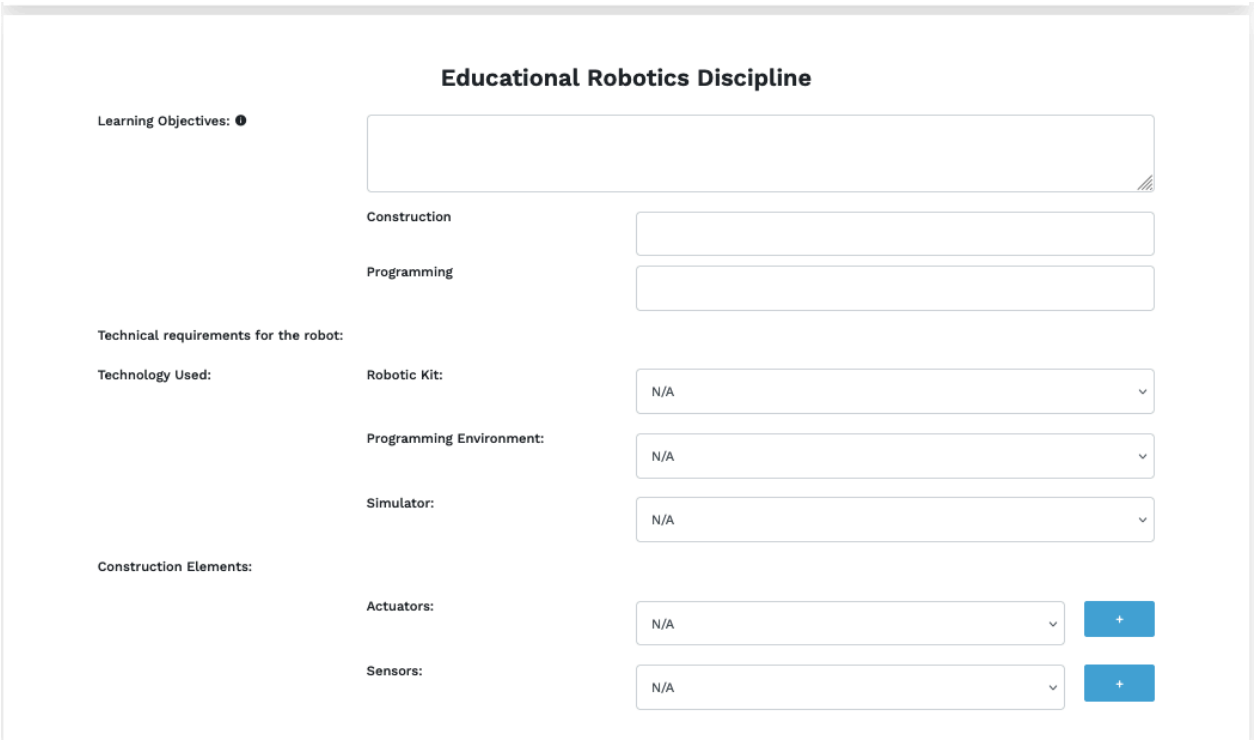

Figure 27. Project Information (3rd section): educational robotics discipline.

Technical requirements for the robot		
Technology used	Robotic Kit	Thymio, Alpha Bot 2, Artie, Blue-Bot, Bee-Bot, Boe-Bot, Cubetto, Edison, Escornabot, Fable, GoPiGo, KeyBot, Lego, Mindstorm, Lego Spike, LinoroBot, MakeBlock Ultimate, Micro:Bit, Makey, Matatalab, MiniSkyRobot, mTiny, Coding Kit, NAO, Neuron, Ozobot, Robotis, Premium, Sphero, Speechi, Robotics, Tello drone, TurtleBot 3, Vex Robotic platform, N/A.
	Programming Environment	W3schools, Doodles, Scratch, Python, Edublock, Code.org, Minecraft, VPL. LEGO, Micro:Bit, DroneBlocks, Blue-Bot app,

		MakeCode, Other
	Simulator	AlphaBot2, EUROPA, GearsBot, OpenRoberta, WeBots, Vex Code, Miranda, Software, Kibotics, Simpark, MakeCode, Micro:Bit-EV3, Virtual Robotics Toolkit, TinkeCard, RoboBlockly, Beebot simulator, Thymio suite, Other
Construction Elements	Actuators	LED diodes, Single motor, Multiple motors, LED diode, LED strip,, Speaker, Light matrix, Display, Other
	Sensors	Distance, Colour Sensor, Button, Thermometer, Gyroscope, Tilt Sensor, Microphone, Sound Sensor, Other

Finally, in the 4th section of the "Project Information", illustrated in Figure 28, you can specify the educational level that the project is aimed at, and a list of ideas for its extension. Note that the education levels that are supported are grouped as follows: Lower Primary, Upper Primary, Lower Secondary, Upper Secondary, Higher Education, N/A.

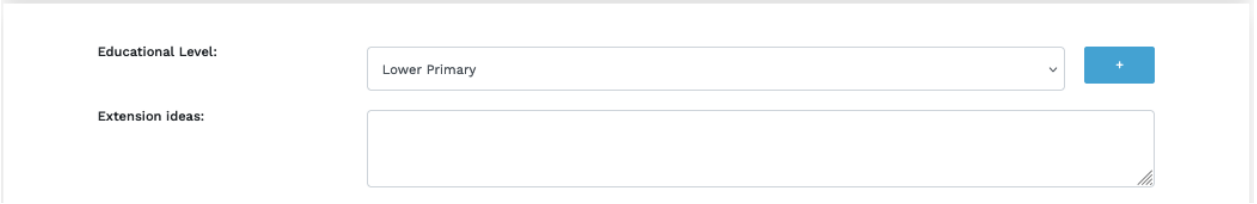

Figure 28. Project Information (4th section): educational level(s) and extension ideas.

5-step organisation

After describing the overall description, you can develop your projects according to the steps of the FERTILE design methodology (see Figure 24). Figure 29 shows how you can select a step (e.g., the step "Understanding the challenge") to get help for it and/or add a short text explaining how you intend to use it to cultivate Computational Thinking. Also, Figure 29 shows how you can add activity/s to each step by utilizing the "+Add Activity" button.

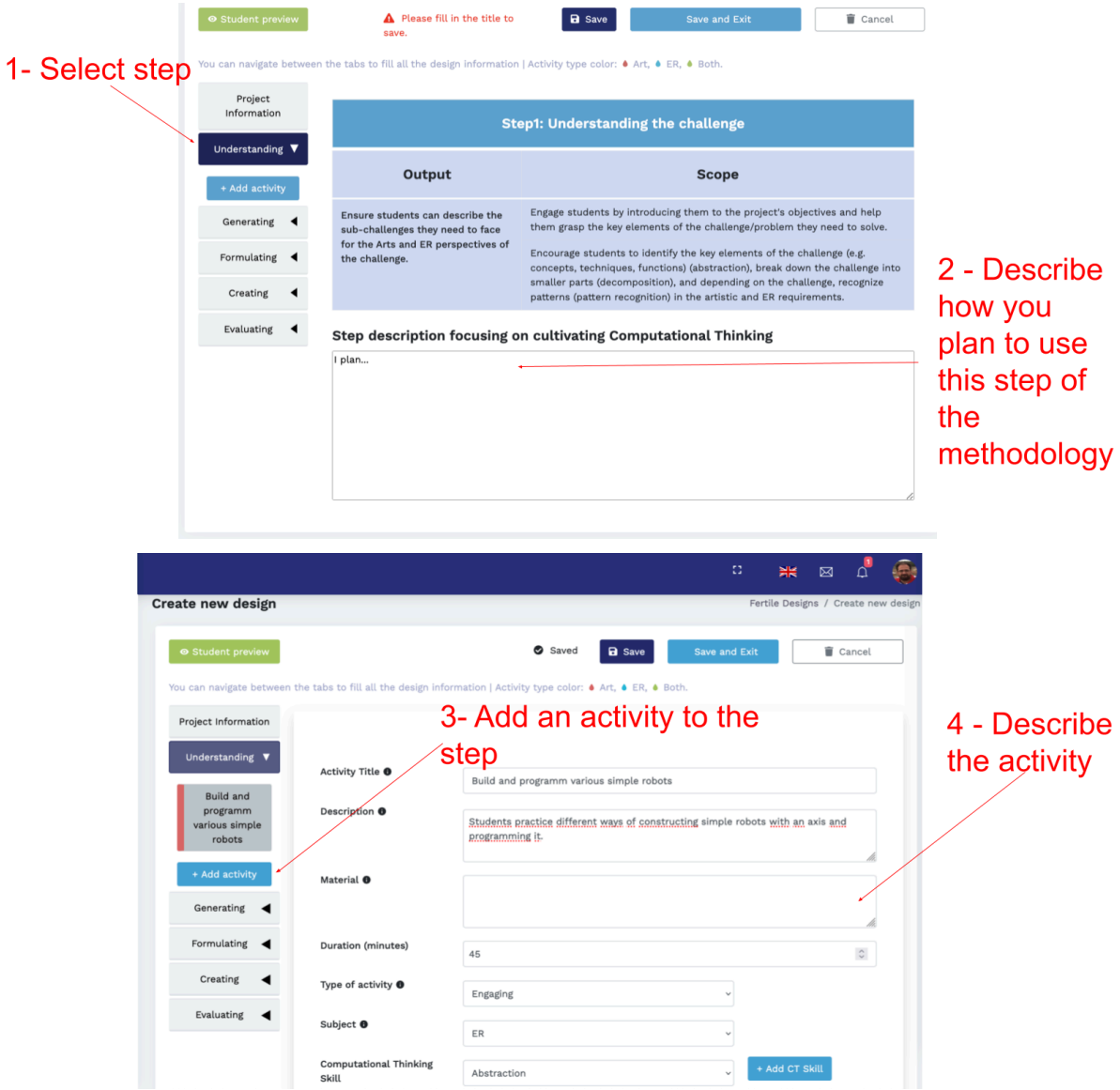

Figure 29. Browsing and creating learning activities within each step of the FERTILE Design Methodology (I).

Notice in Figure 29 the fields provided for the description of each activity. There are fields in which you can fill in free text, and fields from which you can select among suggested values. The "Activity Title" in each new activity is "Untitled" by default. As soon as you provide a new title, it will appear in the project overview in the left column. Also, fields that you can fill in with free text are "Description", "Material" and "Duration" of the activity.

The remaining fields include suggested values based on the FERTILE design methodology to make it easier for you to describe your Artful Educational Robotics project. In particular, the suggested values per field are as follows:

- "Activity Type": engaging students, Exploring new content, Exploring the challenge, Planning, Programming, Constructing, Evaluating, N/A.
- "Subject": Art, ER, Both.

- "Computational Thinking Skill": Abstraction, Decomposition, Pattern Recognition, Algorithmic Thinking, Evaluation, N/A.
- 'Modality': face-to-face (F2F), Online synchronous, Online asynchronous, N/A.
- "Class orchestration": individual, teamwork, plenary, N/A.

Notice that according to the value you enter in the "Subject" field, a different color will appear in the project overview in the left column.

Figure 30 illustrates the last part of the edition of an activity in which the availability of an activity to students is configured. It relates to the platform functionality of making projects available to teachers via "Classrooms", and the functionality of the platform to support the input of students to implement in "Classrooms" the projects developed by teachers.

The three fields provided to teachers enable them to write instructions to students, upload a relevant file (a "worksheet" for the students), and decide on the visibility of the activity to students via "Classrooms". More information about this functionality can be found in the corresponding chapters of this guide regarding the "Classroom" functionality supported by the platform.

Finally, the distinctive red "Delete Activity" button allows you to delete the current activity after asking for extra confirmation for this critical action.

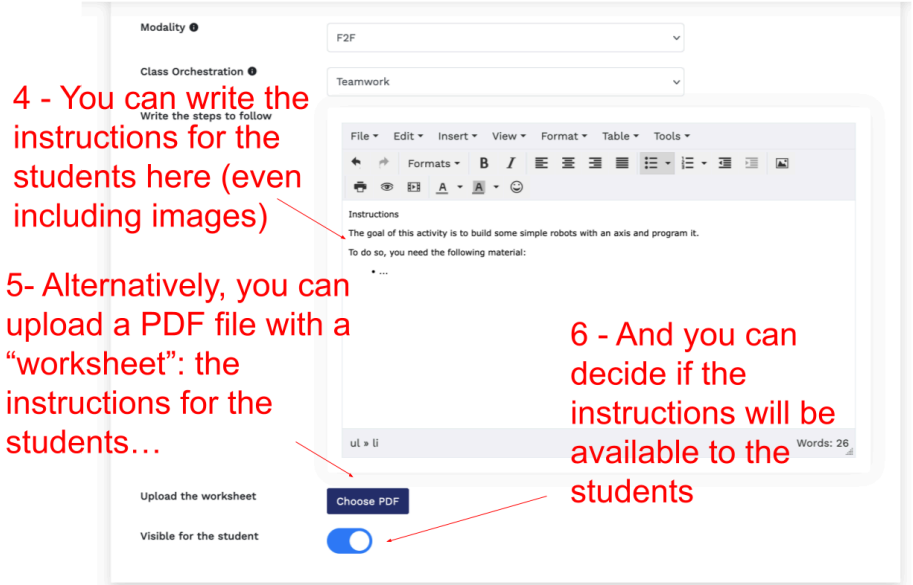

Figure 30. Browsing and creating learning activities within each step of the FERTILE Design Methodology (II).

5.3 Student preview

When editing a project you have the option to see how the project will be made available to your students via the "Student Preview" functionality. Figure 31 illustrates the selection of the functionality and Figure 32 shows an illustrative screen with the preview of a project.

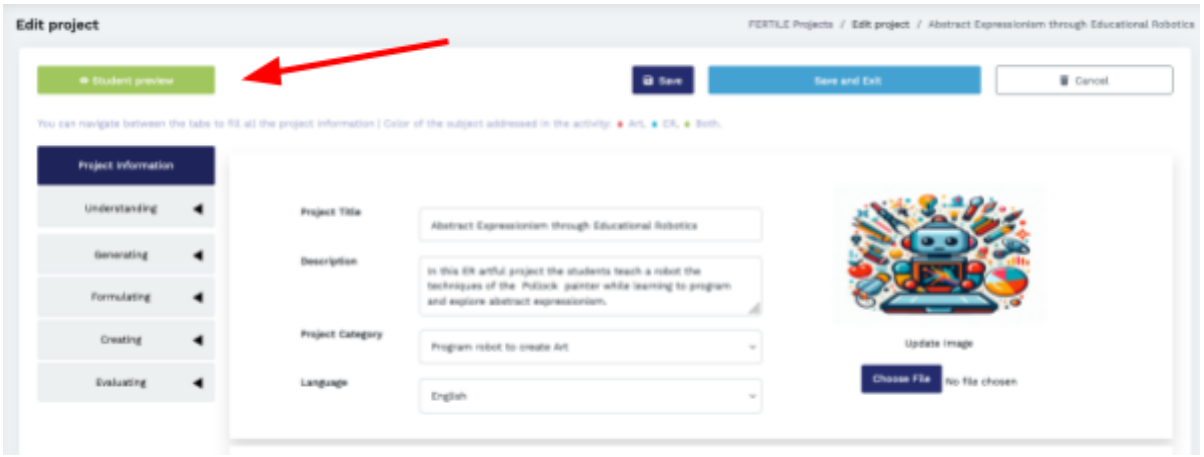

Figure 31. Asking the platform to show how students would see the project that is being edited.

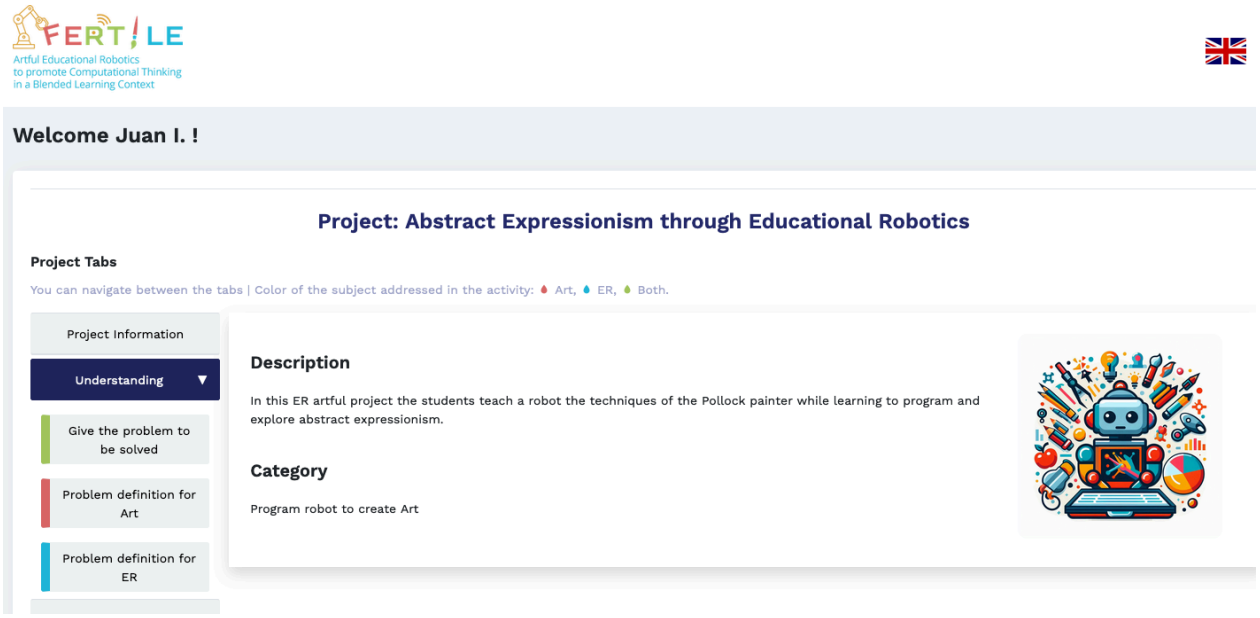

Figure 32. Project preview for students.

5.4 My projects

As shown in Figure 33, selecting "My projects" from the toolbar displays a list of the projects you have created. Alternatively, under "Share with me" you can have the list of projects that other

teachers have shared with you. Also, in the "Recycle Bin" you can view and restore projects you have deleted previously.

As also shown in Figure 33, in the list of "My Projects", similarly to the list of projects in the "Repository", filters can be applied for the "Category" of projects, the "Education Level" and the "Language" in which the projects have been developed.

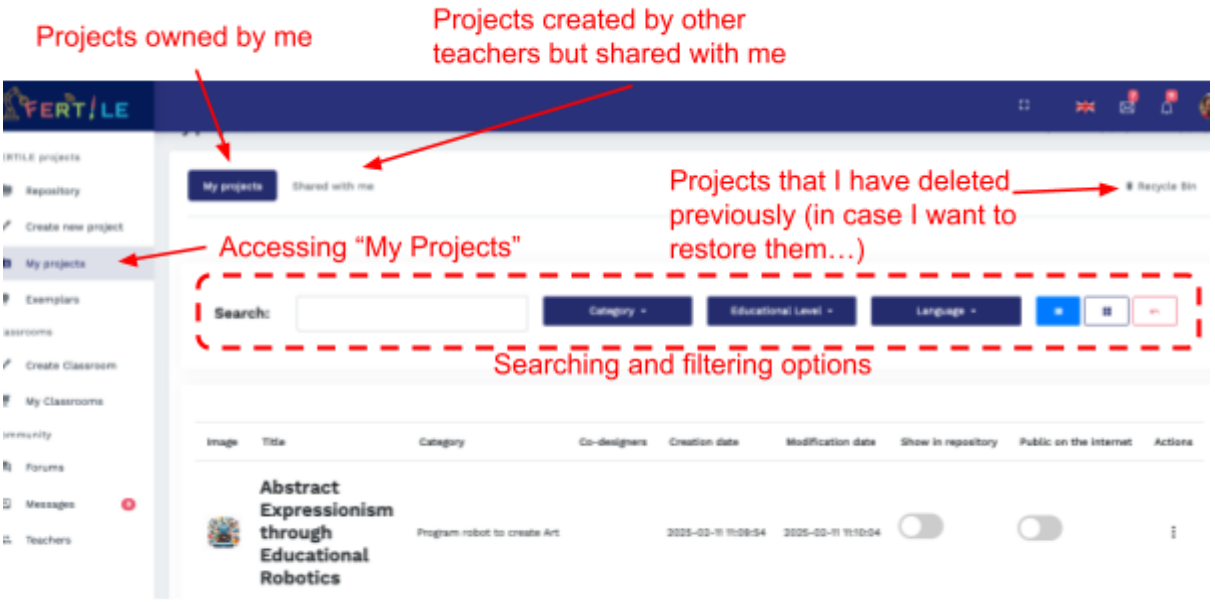

Figure 33. Overview of my projects.

Figure 34 shows the information describing each of "My Projects": a representative image of the project, the title, and the date the project was created. Also, Figure 34 shows the actions available to be carried out for each of "My projects":

- "View" the project.
- "Duplicate" to make a copy of the project.
- "Share" allows the selection of co-designers for the project by selecting them from the list of users of the platform. This action enables the collaboration of teachers from different disciplines (ER and Art) in the same project. Therefore, in each project it would be desirable to have co-designers from both disciplines.
- "Edit" the project.
- "Publish" makes the project public on the internet via a URL where anyone can view the project without being a user of the FERTILE community platform.
- "Move to Recycle Bin" to delete the project.
- "Show in repository" of the project. That is, whether or not the project has been made public in the platform community. It is worth noting that during their creation the projects are private and only their creator has access to them. Only by enabling "Show in repository" the project will appear in the list of projects in the Repository..
- "Public on the Internet". It is equivalent to the "Publish" action described above.

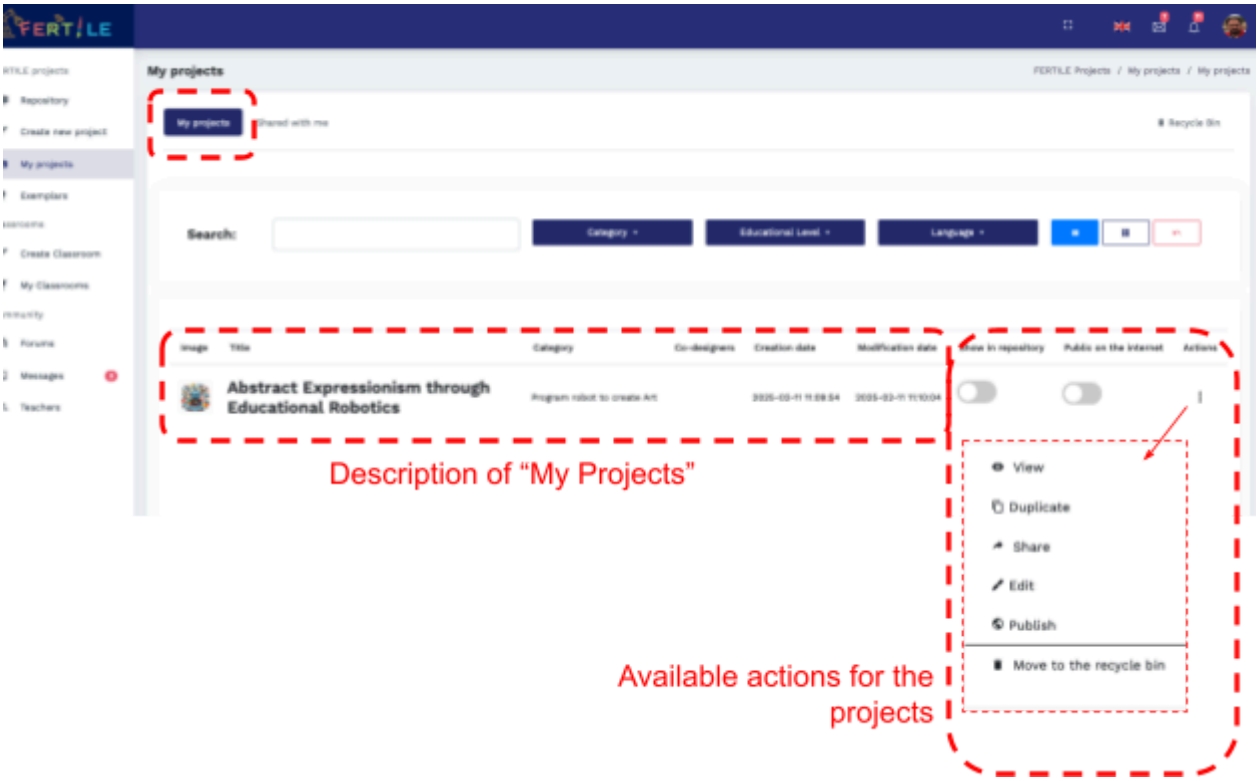

Figure 34. Information and actions for "My Projects".

For those projects "Share with me", the available actions, as well as the describing information, is a bit different (see Figure 35). Common information is the "Image", "Title", "Category" and "Creation date" of each project. In the case of shared projects, "Created by" and "Co-designers" are additionally displayed. The actions are limited and only View, Duplicate, and Edit are available.

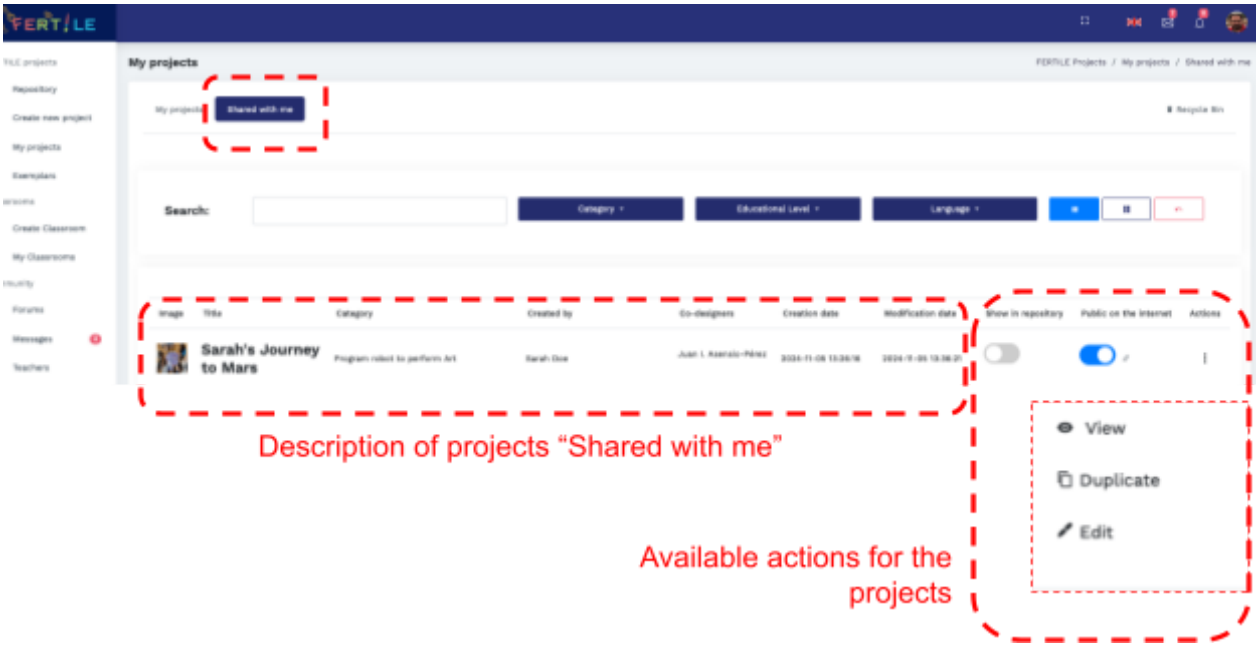

Figure 35. Information and actions for projects "Shared with me".

5.5 Co-designing projects

As shown in the previous paragraphs, when a project appears in "My Projects" because the teacher is the creator of the project or when a project appears in "Shared with me" because it has been "Shared" by another teacher, the "Edit" project action is available. Thus, the "Sharing" of a project enables the possibility of being edited by multiple teachers of the platform.

IMPORTANT NOTE: Editing a project can NOT be done at the same time by several users. The FERTILE community platform does not support synchronous editing. When a project is already open for editing by another teacher, the warning message "Access to edit denied..." appears, and the platform prohibits synchronous editing of the project.

5.6 Accessing and displaying projects

FERTILE projects can be accessed and displayed using three different alternatives:

1. When reviewing the list of projects in the "Repository" you can select to display any publicly available project (Figure 36).

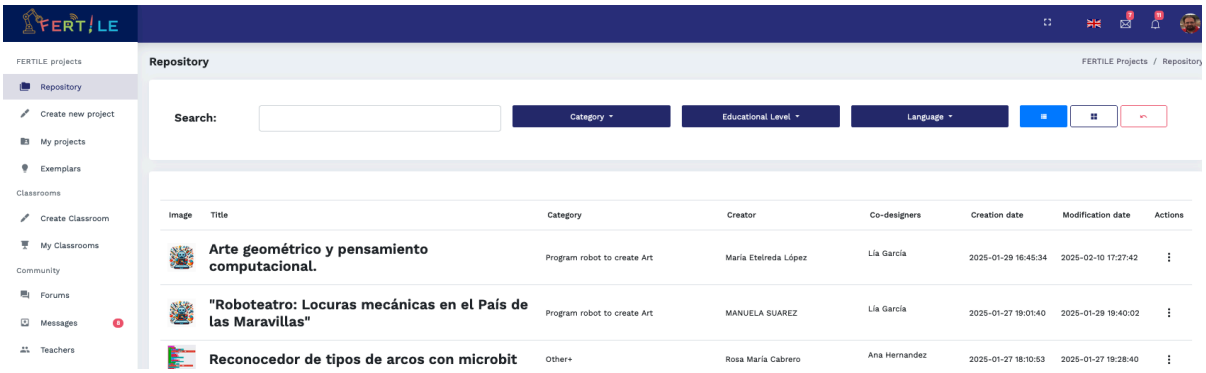

Figure 36. Accessing projects via the “Repository”.

2. When reviewing the list of community teachers, you can select any teacher to see a list of his/her published projects. Then you can choose to display any publicly available project from the list of projects (Figure 37).

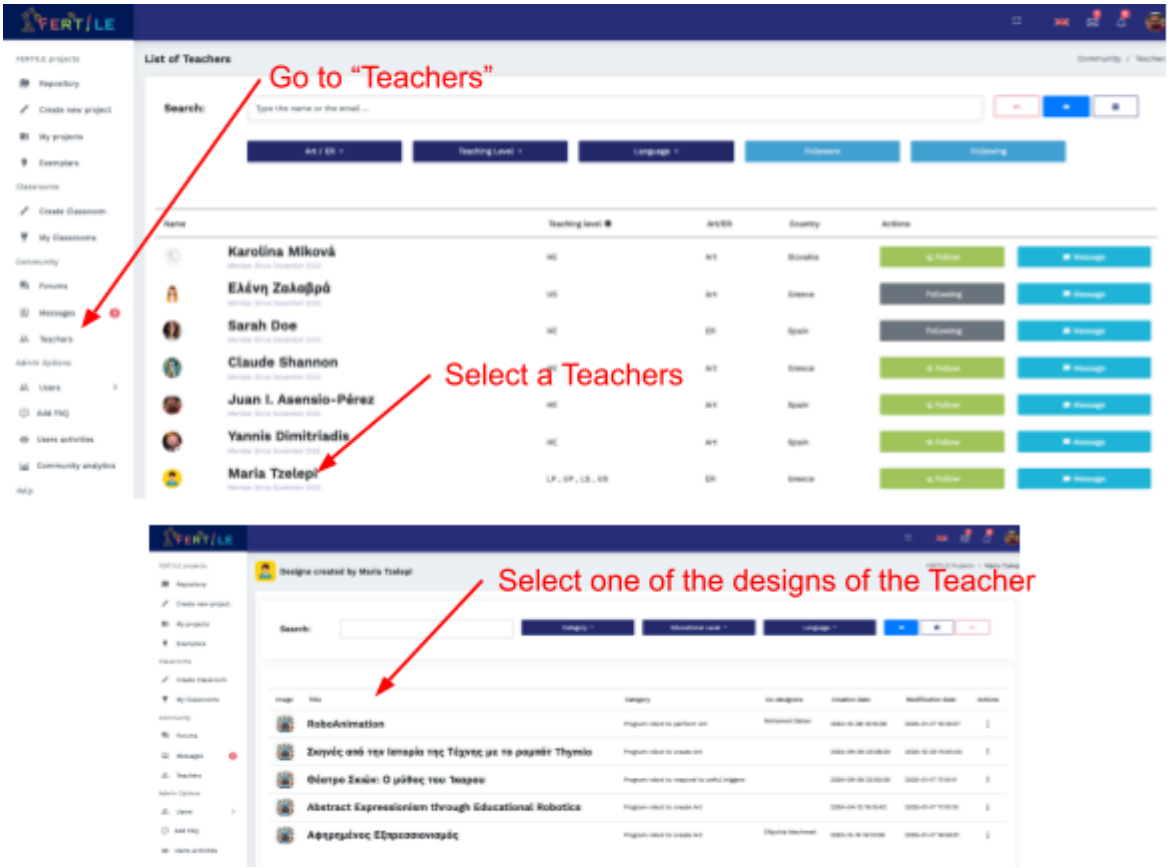

Figure 37. Accessing projects via the list of “Teachers”.

3. When reviewing the list of "My Projects" you can choose to display any of your projects (Figure 38).

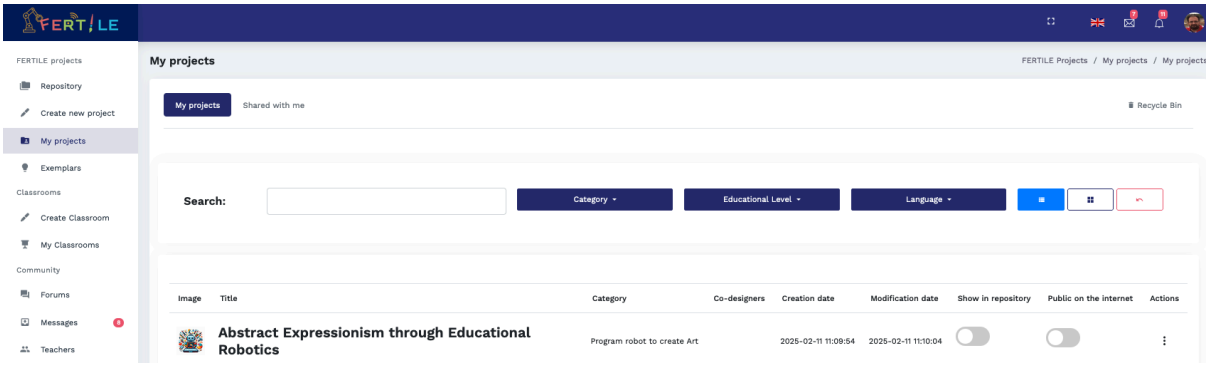

Figure 38. Accessing projects via “My Projects”.

5.7 Publishing projects

The idea of "publishing projects" consists of making your projects available to Teachers that are not members of the FERTILE Community Platform (i.e., they are not registered in the platform). If you publish your projects, they will be accessible by anyone using the URL provided by the platform.

IMPORTANT: please, do not confuse "Publish Projects" (a projects is available to people not registered in the platform) with "Show in repository" of the project (a project is available to all the people registered in the platform and, therefore, appears in the list of projects when you access the "Repository").

To publish a project you can go to "My Projects" and, for the project you want to "publish", click on "Actions" and select "Publish". Alternatively, you can activate the control "Public on the Internet" (see Figure 39).

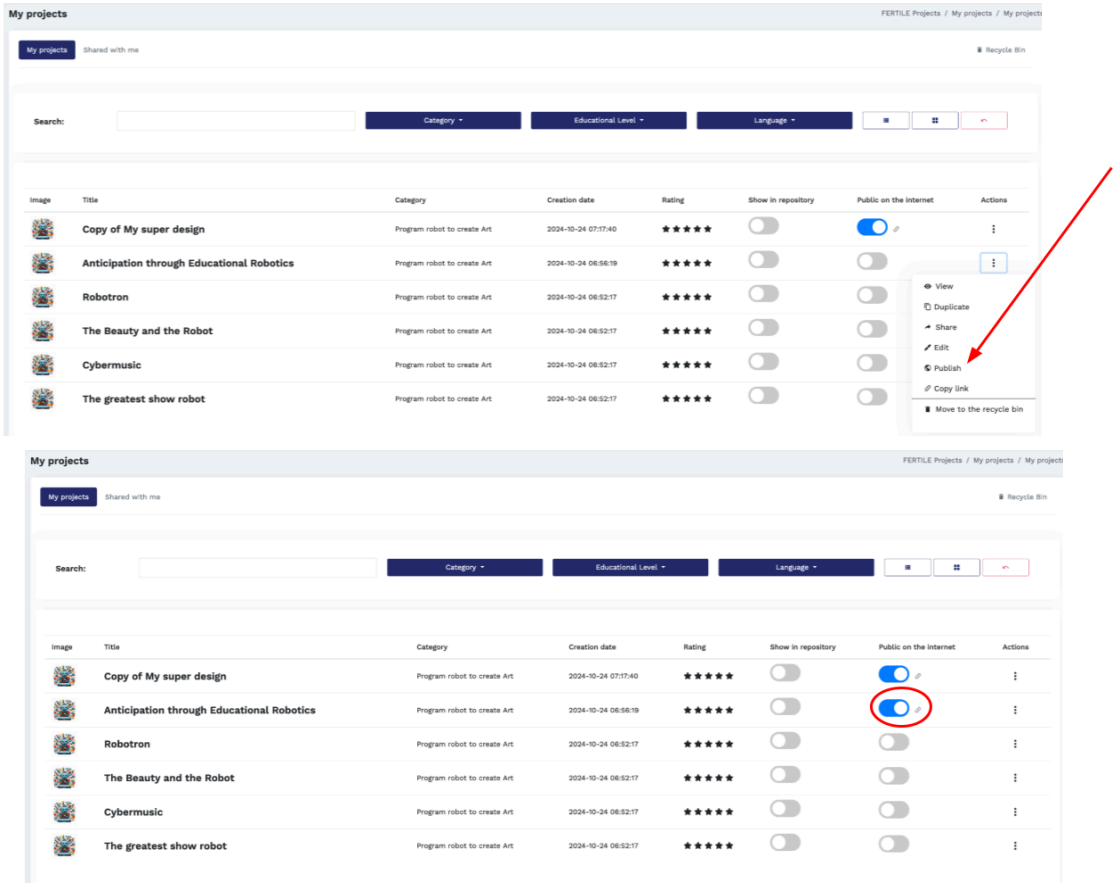

Figure 39. Two options for publishing a project on the Internet.

Once you have published the project, if you click on "Actions" again you will see that two new options appear: "Unpublish" and "Copy Link". The latter provides you with the link by means of

which the project can be accessed from outside the Community Platform. Finally, if you want to stop allowing external teachers to access (in a read mode only) your project, you can simply "Unpublish" it (Figure 40).

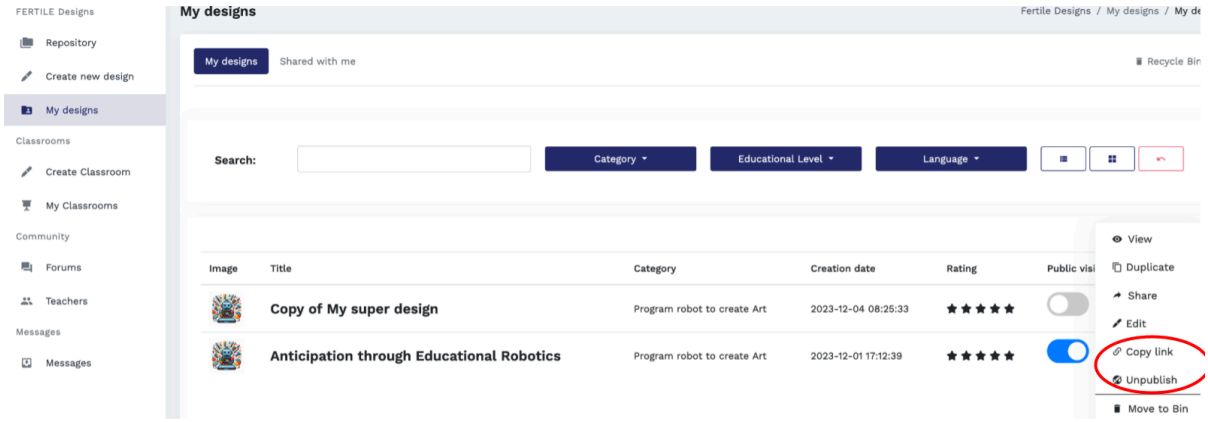

Figure 40. Options to get the link to a published project (and to unpublish it).

5.8 Discussion about projects

Teachers in the FERTILE CP can discuss a project with the rest of the community ("public discussion") or with the co-editors ("private discussion") as indicated in Figure 41.

Figure 41. Public and private discussions available for FERTILE projects.

6. Classrooms

Teachers can make a project available for implementation to their students through the "Classroom" functionality supported by the platform. Through “Classrooms” it is possible to provide students with instructions and resources without the need for another computing environment for the enactment of the projects. Figure 42 illustrates the classroom creation process.

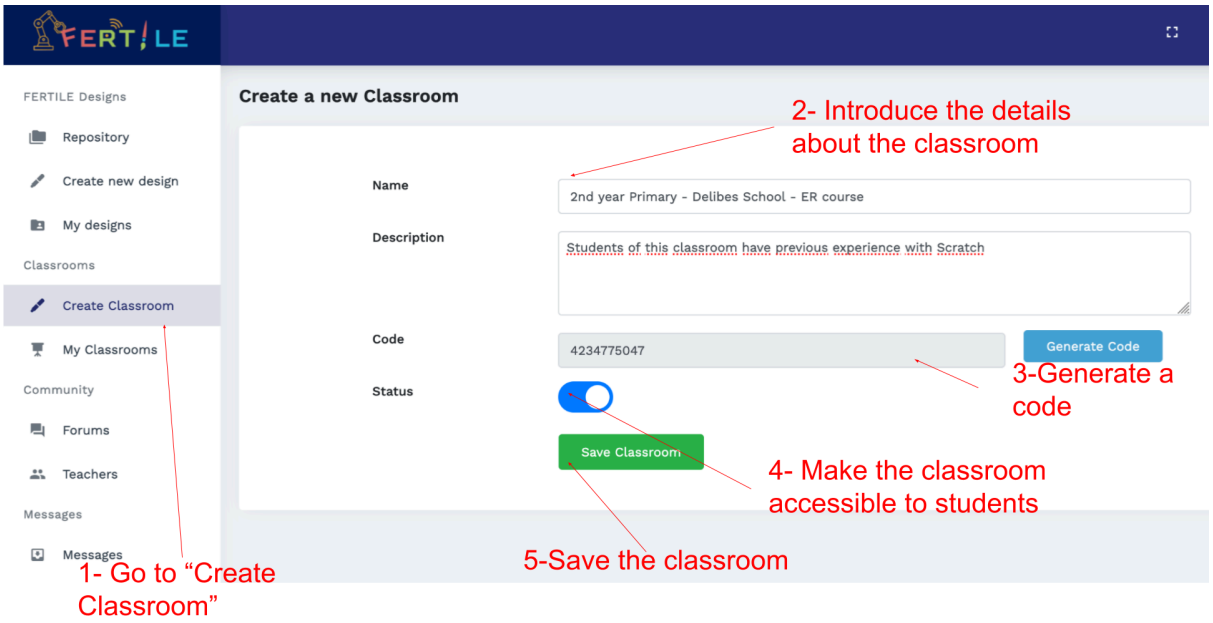

Figure 42. Creating a FERTILE Classroom.

After "saving" the classroom, you can now see the QR code that would give direct access to the classroom. You can also see the NUMERICAL CODE that grants access to the classroom. However, before granting students access to the classroom, it is VERY IMPORTANT that you assign one or several of your projects to the classroom (via the “Manage classroom” action described below).

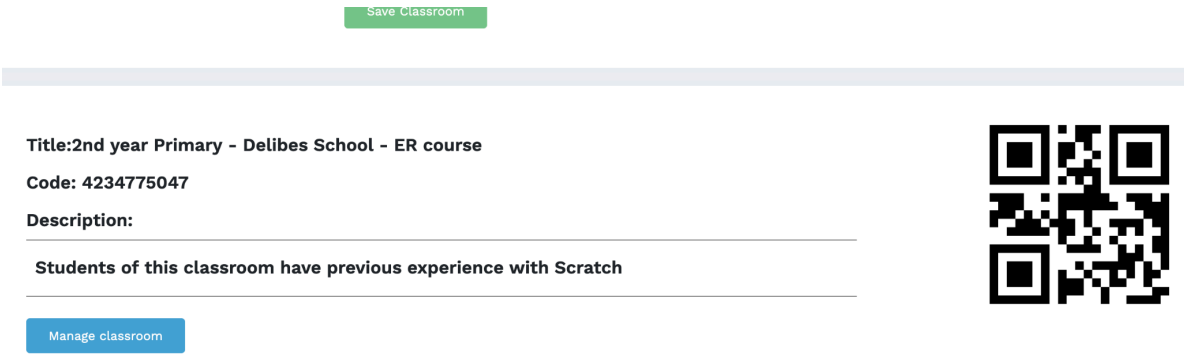

Figure 43. QR and numerical codes for accessing a FERTILE Classroom.

After the class has been created, as shown in Figure 44, you need to configure it. The available actions are:

- "Manage Classroom": to edit classroom information, assign projects to the classroom, and manage enrolled students. Figure 45 illustrates these possibilities.
- "Copy link": to provide a direct link to students as alternative to accessing through the platform's homepage.
- QR Code: similar to the "Copy link" action, but delivering the link via a QR code..
- "Access the Classroom": allows the teacher to access the classroom and check what his/her students will see.
- "Delete".

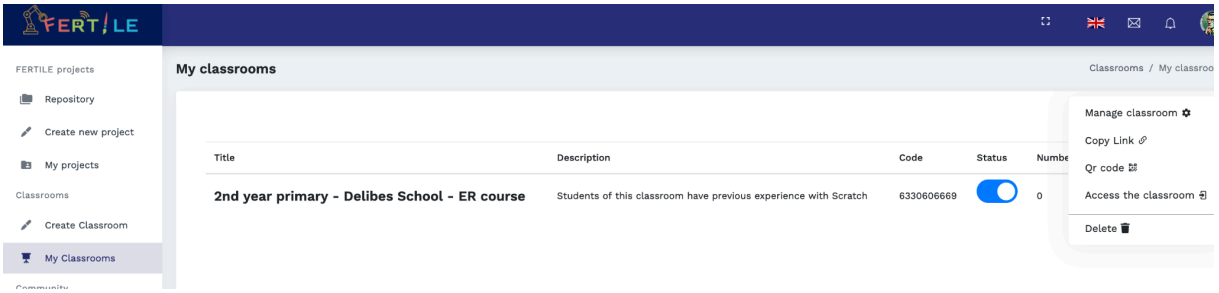

Figure 44. Classroom-related actions.

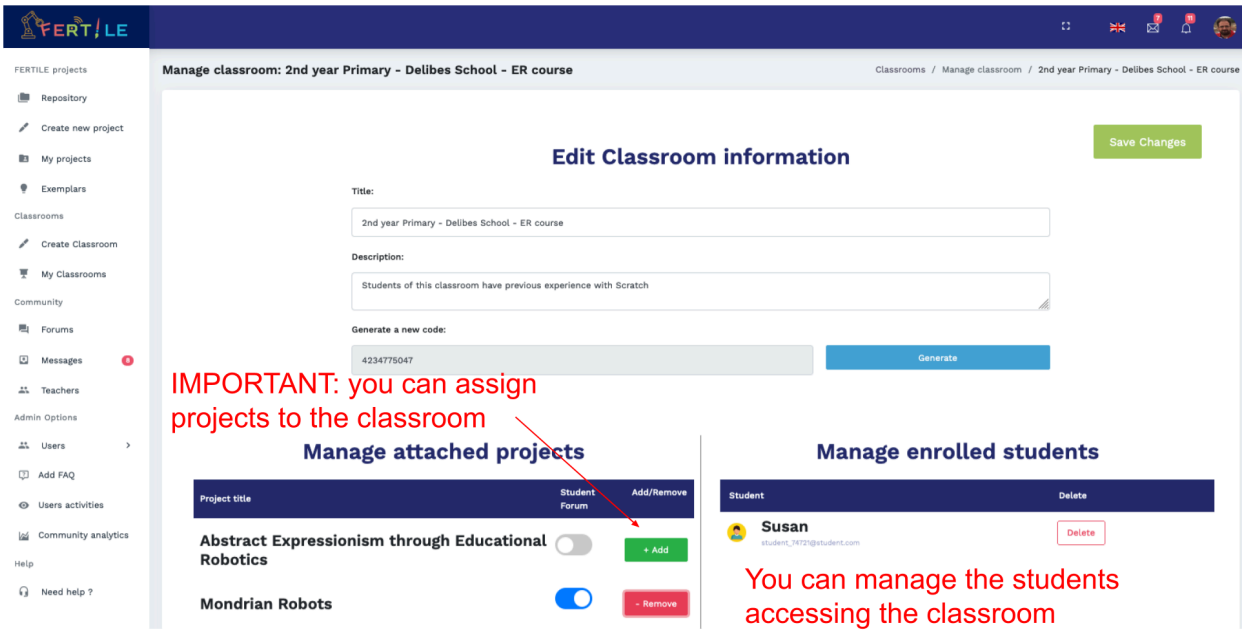

Figure 45. Managing a FERTILE Classroom.

7. Access of students to FERTILE Classrooms

As illustrated in Figure 46, on the FERTILE platform home page, in addition to logging in as a teacher, students are given the opportunity to access the platform.

Students can access specific "Classrooms" according to the codes created for them by the teachers. Relevant instructions for teachers are available in the "Classrooms" section where teachers create classrooms for the implementation of their projects and for setting the access codes for students.

Figure 46. Students can access FERTILE classrooms via the platform's Home Page (fertile.gsic.uva.es).

By selecting "Access a FERTILE classroom now", the screen shown in Figure 47 appears where the student can enter (i) his/her name and (ii) the "FERTILE Class" code provided by the teacher. The first time (s)he uses the platform (s)he can give whatever name (s)he wants and the platform will generate an appropriate username for him/her. It is recommended that the student always uses the same name and enters the respective class code given by the teacher for accessing projects.

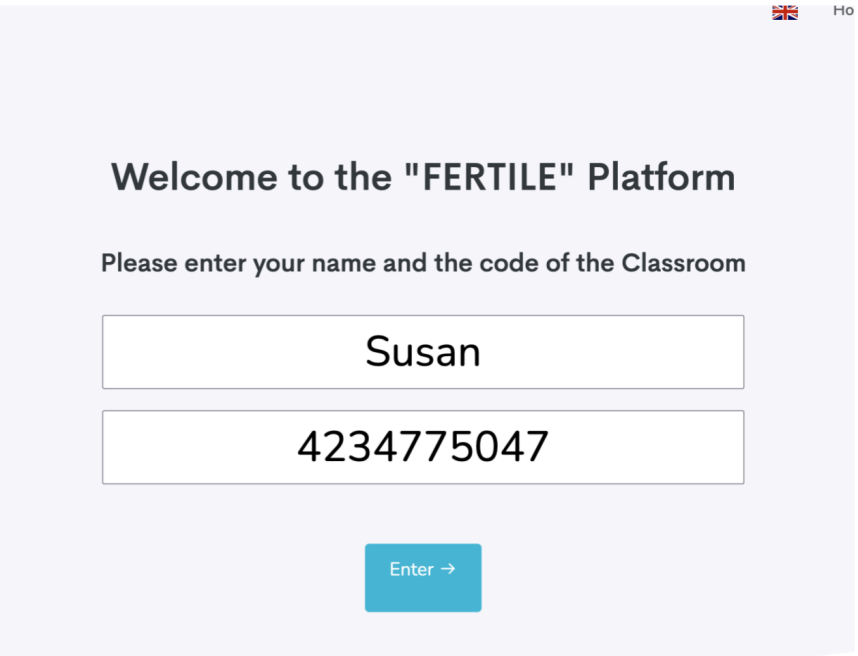

Figure 47. Accessing a FERTILE Classroom.

On the next screen (Figure 48) the student will be able to select the project that the teacher has assigned to the specific classroom (s)he is entering.

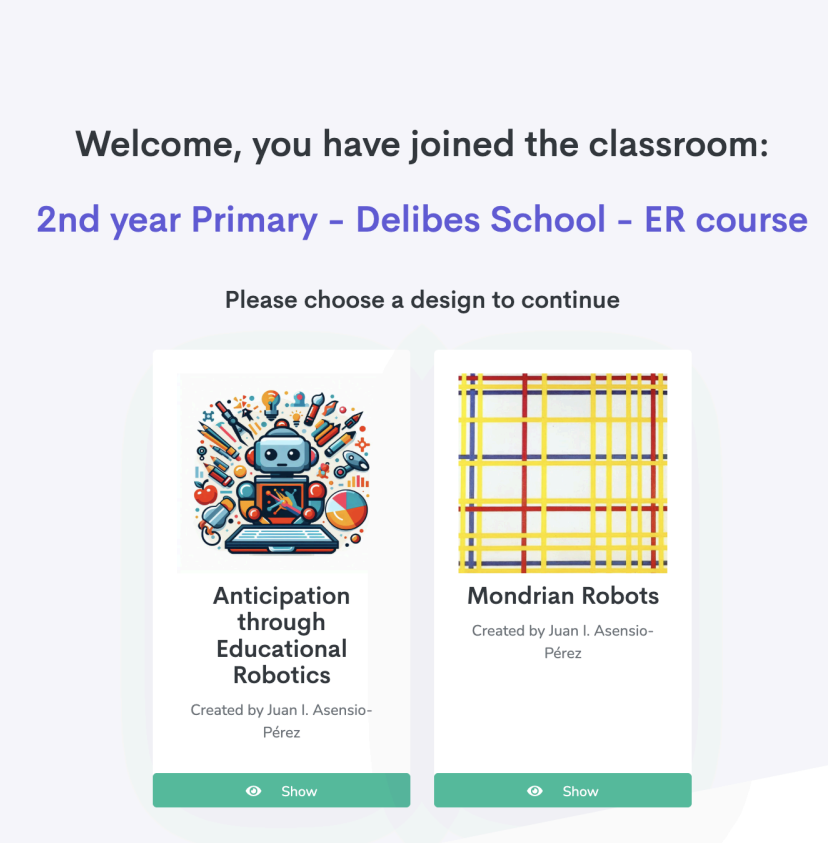

Figure 48. Entering a project within a classroom.

By clicking on "Show" the students can see the information about the project and enact it according to the guidelines (Figure 49) and/or instructions/worksheet (Figure 50) provided by the teacher.

Figure 49. Guidelines about an activity as shown to the students.

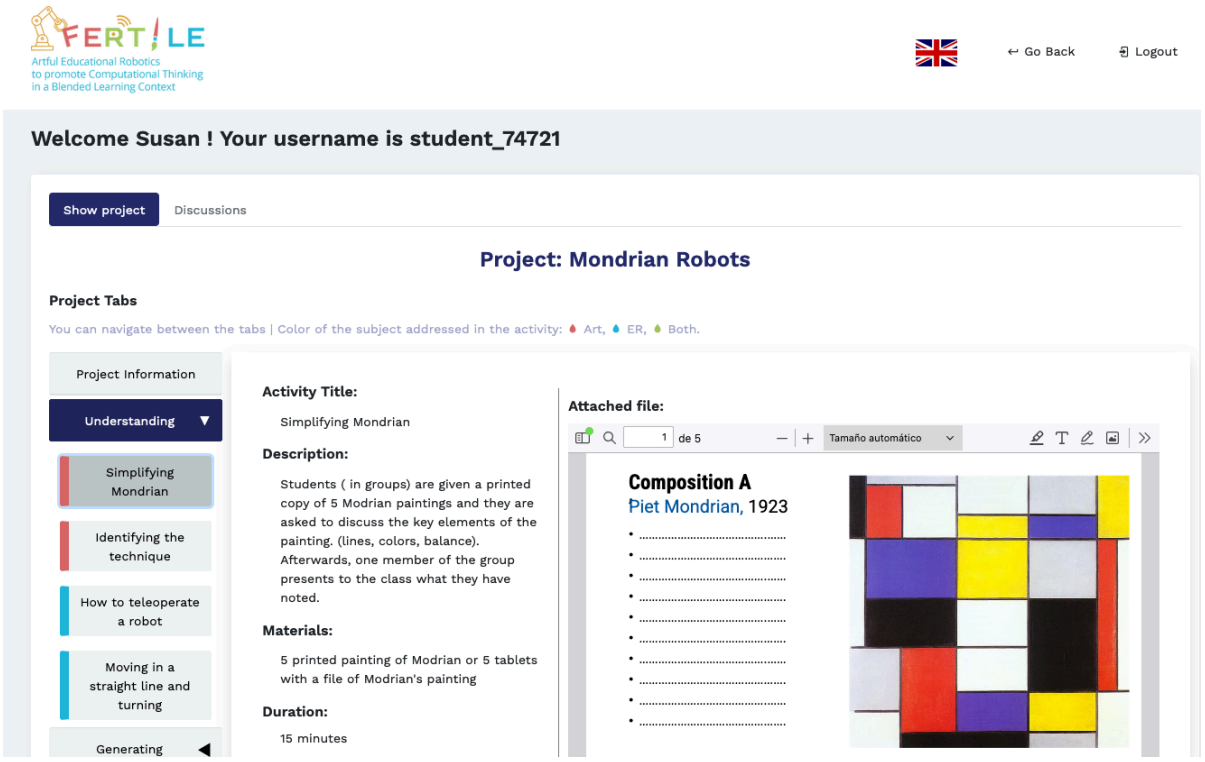

Figure 50. Instructions/worksheet about an activity as shown to the students.

The students can also access the "Discussions" tab for exchanging messages with the teachers and the other students (WARNING: the “Discussions” tab only appears if the teacher configured this option when “Managing” his/her classroom):

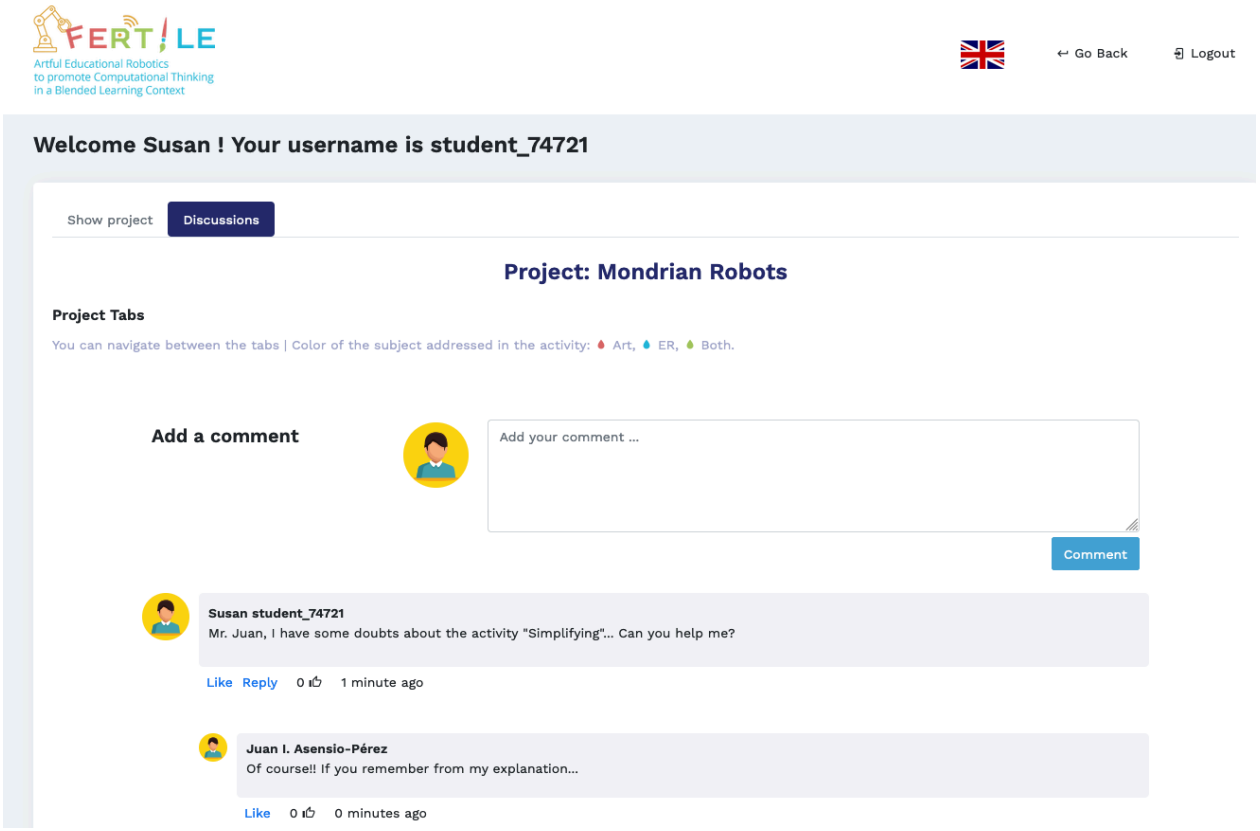

Figure 51. Students and teachers can interact via the “Discussions” Tab of a project.