UNIVERSITY
OF TWENTE.

TIIM

USER MANUAL

THE
BMS
LAB

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INTRODUCTION TIIM

Introducing **TIIM –** the ***Twente Intervention and Interaction Machine***

Data collection is a fundamental aspect of many research studies, particularly those that are longitudinal in nature. However, traditional methods of data collection, such as paper-based surveys or face-to-face interviews, can be time-consuming and prone to errors. Mobile applications have emerged as an innovative solution to these challenges, and **TIIM** is one such application developed by the University of Twente (UT).

TIIM is an iOS and Android-compatible mobile application that enables researchers to collect data from study participants directly on their smartphones. The application is part of the research software provided and maintained by the BMS Lab and is aimed at providing researchers with the capability to study participants long-term or repeatedly, for example, in cohort or longitudinal studies.

To organize studies in different intervention conditions, containing flexible modules and a wide array of possibilities for survey items, such as stimuli or measurement items, **TIIM** offers a highly customizable web application for researchers, known as 'the dashboard'. The timing and order of items can be moderated by the researcher and push notifications can be sent to participants at specific times and in a predetermined order. Questions can be packed into modules, making it easier to manage and control the flow of data collection. Moreover, the application offers item routing and questionnaire conditions that enable the adaptation of studies to individual participants, thereby enhancing the quality of the data collected.

TIIM 's data collection capabilities make it a valuable tool for researchers. The application saves data in the interface (dashboard), making it easy to track and analyze results. Moreover, **TIIM** studies can be adapted to individual participants, making it easier to conduct complex and long-term studies. At the end of a study, **TIIM** provides researchers with a downloadable CSV file, making it easy to export, the results for analysis and reporting. **TIIM** is designed to be ethical and responsible, so ethical approval is mandatory.

With the assistance of this manual, you will be able to:

1. Register your research.
2. Create a project in **TIIM.**
3. Create studies, interventions, modules and items.
4. Set up timing rules for interventions.
5. Promote engagement using push notifications.
6. Create calculated variables.
7. Enroll and manage researchers.
8. Enroll, register and manage participants.
9. Download and export the data for analysis.

BEFORE YOU GET STARTED

CHECKING CONDITIONS

The use of software, equipment, spaces, and other resources of the BMS-Lab, you will need to register your project. However, you will also need to check if your study and intended use of these materials meet our policies, terms, and conditions. Below are the main topics you will have to consider.

SCOPE

Your project needs to be in line with the vision and scope of the BMS-Lab. This means it must be related to the social sciences and aiming at the benefit of society. It has to be aligned with the BMS-Lab values of *Innovation*, *Creativity* and *Pioneering*. And, of course, your study needs to be scientifically rigorous, feasible and realistic.

https://bmslab.utwente.nl/policies/

https://bmslab.utwente.nl/policies/

ETHICAL APPROVAL

Every study involving human participants requires authorization from UT. If you intend to conduct research involving people, it is necessary to submit your research proposal for ethical evaluation. This requirement applies to all types of research within the Faculty of Behavioral Science that involve humans, whether indirectly through analysis of files or social media, or directly through experiments, surveys, or interviews. Tryouts, calibration, development and preparation of experiments are exempt of approval.

https://www.utwente.nl/en/bms/research/ethics/

DATA MANAGEMENT

You are liable for all the data collected in or with the help of the BMS-Lab. This means you will be entirely responsible for all data produced in your study, including, and not limited to, its collection, storage, safekeeping, anonymization, and processing.

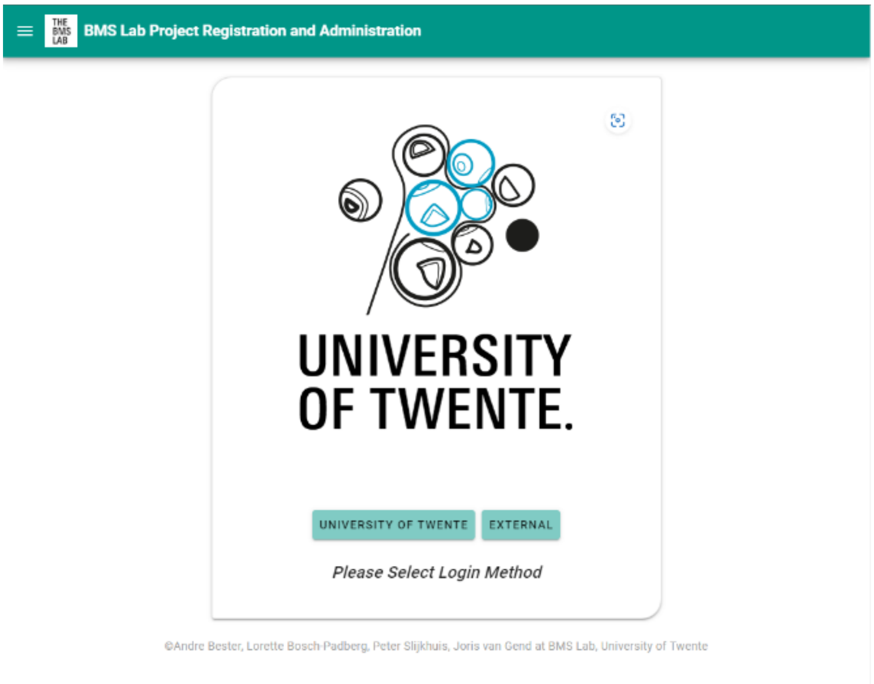
https://bmslab.utwente.nl/policies/data-management-and-policies/

GETTING STARTED – PROJECT REGISTRATION

Once you have designed your research project, it is time to register it with the BMS-Lab. By registering your project, you will assure it complies with the BMS-Lab and UT requirements, and it will grant you access to a variety of resources, such as software, equipment, or facilities. You can register your project at the following address:

https://bmslab.utwente.nl/register-project/

1. On the registration page, you will be reminded of the requirements for registration.
2. Once you have met all conditions, you can click on – REGISTER YOUR PROJECT –
3. You will be directed to the login page:



INTERNAL (UNIVERSITY OF TWENTE)

After logging in with your UT account, you will be directed to the registration system dashboard. See the next steps in the Registration System Dashboard section.

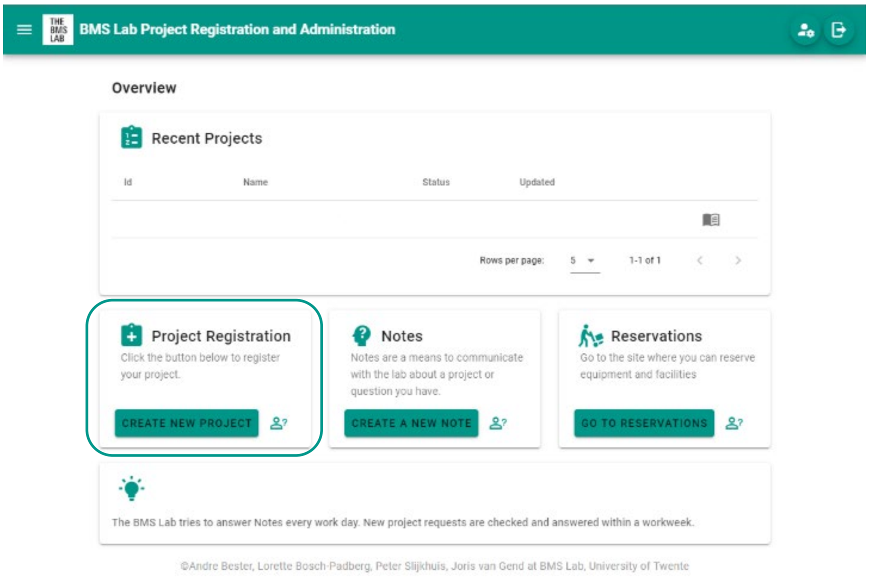
EXTERNAL (OUTSIDE UNIVERSITY OF TWENTE)

As a new user, you first need to:

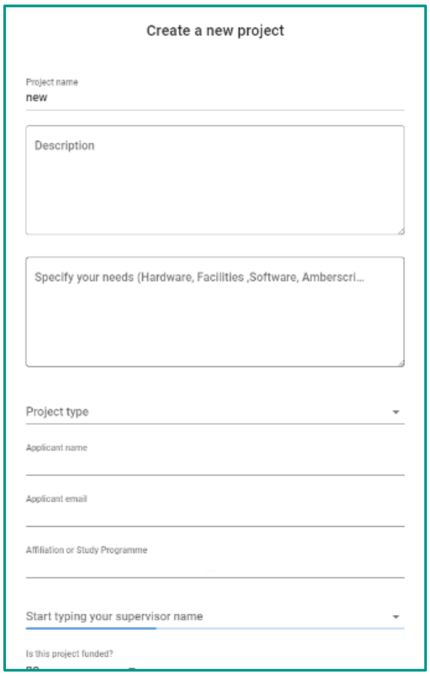
1. Enter your username and password.
2. Then, select – CLICK TO REGISTER –.
3. You will get a verification email.
4. After clicking on – VERIFY –, you can go back to the project registration website and click on – EXTERNAL –.
5. Insert your login information and click on – LOG-IN –.
6. You will be directed to the registration system dashboard.
7. See the next steps in the Registration System Dashboard section.

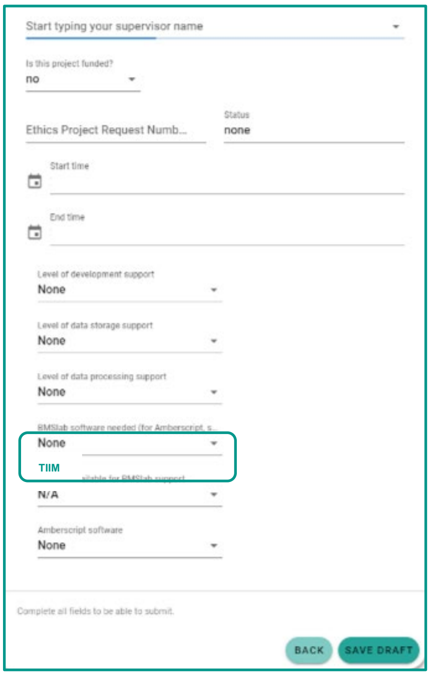
-REGISTRATION SYSTEM DASHBOARD

1. Go to – PROJECT REGISTRATION – : Click on – CREATE NEW PROJECT –.



2. You will need to fill out a registration form, with details of your project, your Ethics Project Request Number and duration of the survey. In the field BMSLab software needed, select **TIIM.**





Once your request has been approved, you will be granted access to the **TIIM** dashboard.

https://dashboard.tech4people-apps.bms.utwente.nl/login

CREATING A NEW ACCOUNT

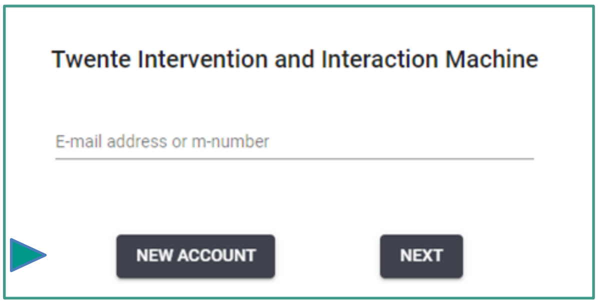
After registering your project, it is time to create your researcher account on the **TIIM** app.

https://dashboard.tech4people-apps.bms.utwente.nl/login

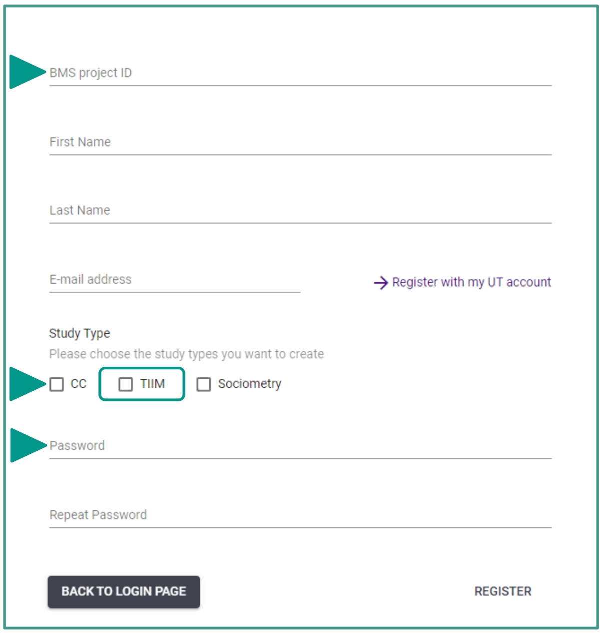
You can see the **TIIM Introduction** instructional video through the following link:

https://youtu.be/ywKUiTLxdqk?si=LDwyyc7NwzP5FBrl

1. Click on – NEW ACCOUNT –.



2. Fill in details. Use the project number you were given upon the registration of your project.
3. Select **TIIM** in Study Type.
4. Choose a password.



Your request will be processed, and you will be informed in up to 5 days.

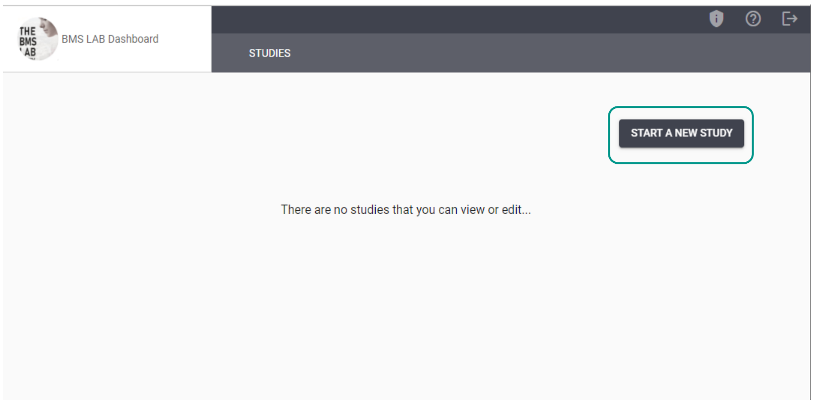
CREATING A STUDY IN TIIM

Upon approval, you will have access to the **TIIM** dashboard, and you will be able to create your study. First, log in to **TIIM**.

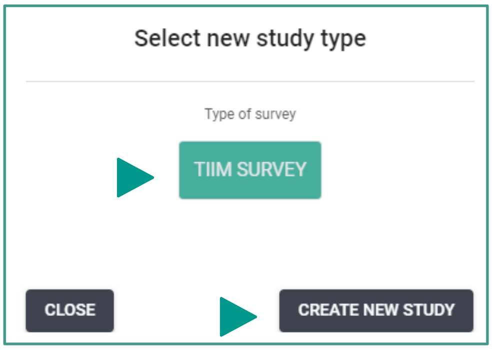
https://dashboard.tech4people-apps.bms.utwente.nl/login

To create your own study, follow these steps:

1. Click on – START NEW STUDY –.

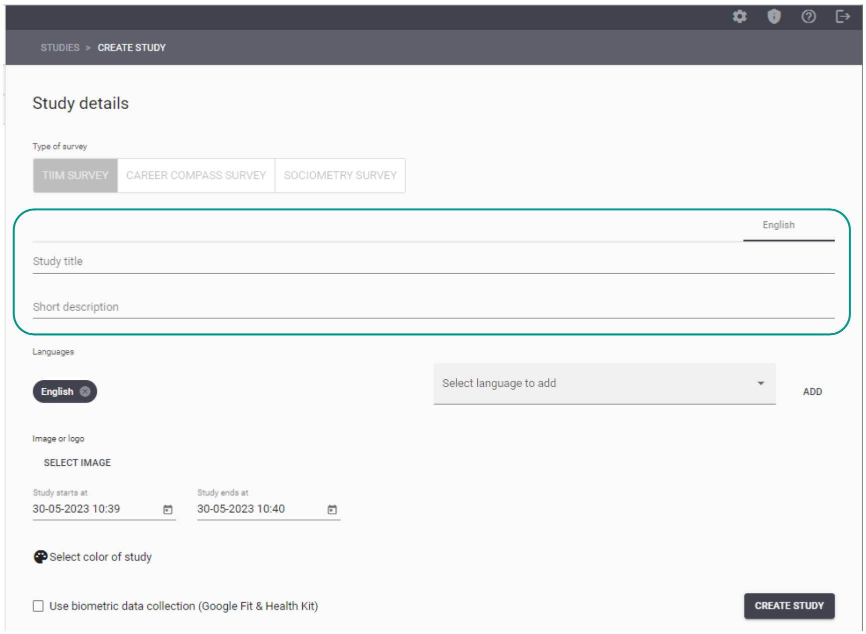


2. Select study type – **TIIM** SURVEY –.
3. Click on – CREATE NEW STUDY –.



FILLING THE DETAILS

4. Fill in the study title and description.



SELECTING A LANGUAGE

4. The **TIIM** app supports three languages: English, German and Dutch.

5. The automatic selected language is English

For each language added, you will need to add their corresponding translations in the title sections.

CHOOSING THE START AND END DATE

6. Type the start and end date.

7. Alternatively, you can use the calendar widget by clicking on the icon on the right side of the field.

SELECTING A COLOR OF STUDY (OPTIONAL)

8. You can customize the appearance of your study dashboard by selecting a unique color.

ENABLE BIOMETRIC DATA COLLECTION (OPTIONAL)

9. The **TIIM** app supports the collection of three types of biometric data with the assistance of wearable devices: *heart rate, steps,* and *sleep*. These data are collected through the Google Fit and Health Kit platforms.

10. Click on – USE BIOMETRIC DATA COLLECTION (Google Fit & Health Kit) –

For more information see the Editing Sensor Configuration section.

FINALIZING CREATION OF STUDY

11. Click on – CREATE STUDY –.

    Once you have created your first study, you will be directed to the dashboard and the card to your study will be visible.

You can still edit this information any time **before** you start collecting data.

UNDERSTANDING STUDIES IN TIIM

A study in **TIIM** comprises four main elements.

1. **Study**

A ***study*** refers to a research project or investigation that utilizes the **TIIM** platform for survey-based data collection and analysis. Within the study, you will design your survey instrument, setting the structure, question, and conditions. A study may comprise one or more interventions.

2. **Interventions**

In **TIIM**, ***intervention*** refers to unique instances or conditions within the data collection process that are designed to assess the effects of a specific treatment or condition. Thus, they represent different conditions or groups within the survey, such as a control group that does not receive any intervention, an experimental group that receives a specific treatment or condition, or pretests and posttests to measure changes before and after an intervention. These terms help categorize and differentiate the data collection process in **TIIM**. Interventions may contain one or more modules.

3. **Modules**

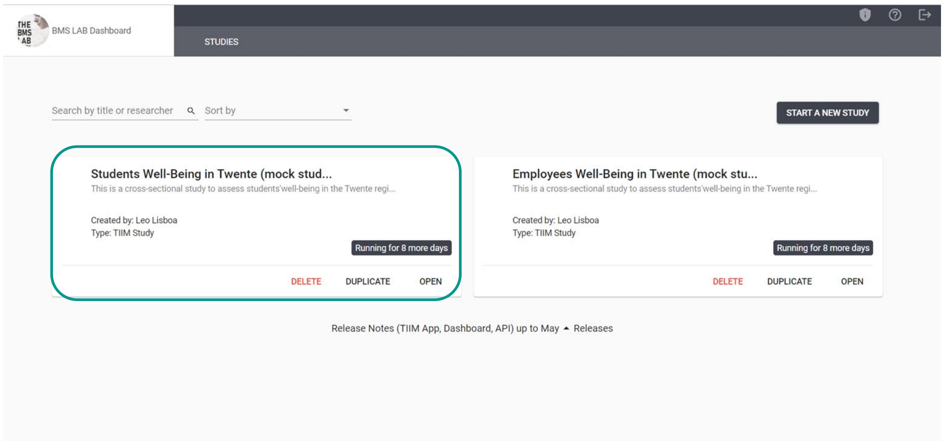
A ***module*** refers to a self-contained section or subset of questions within a larger survey instrument. Modules are often used to group related questions that pertain to a particular topic or construct. They help organize the survey and make it more manageable for respondents. For instance, in a customer satisfaction survey, there may be separate modules for assessing product quality, customer service, and delivery experience, each with a set of questions tailored to that specific aspect. A module consists of one or more items.

4. **Items**

Items are individual units of inquiry within a survey. They are the specific prompts or queries presented to respondents to gather information or opinions. Each item typically focuses on a single topic or aspect of interest. Examples of survey items include multiple-choice questions, rating scales, open-ended questions, or demographic inquiries. The responses to these items are used to collect data and analyze the survey results.

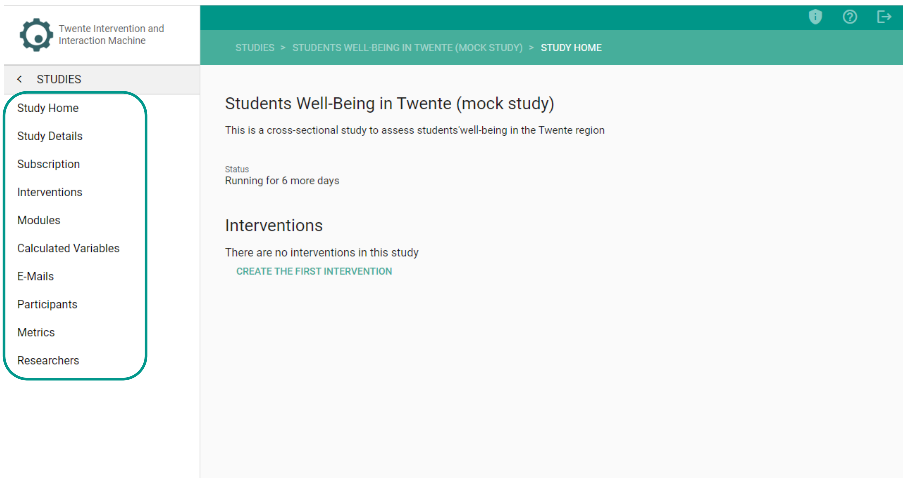
STUDY HOME

In the dashboard, you will be able to see all your studies hosted and conducted with **TIIM**. Each study will be represented by its own card.



From the card, you can *delete* your study, make a copy of it (*duplicate*) and *open* it. Once you click on – OPEN – you will be directed to the dashboard page of your study.

The sidebar shows you all the services and functions in the **TIIM** app:



For complete description of tabs see Appendix A.

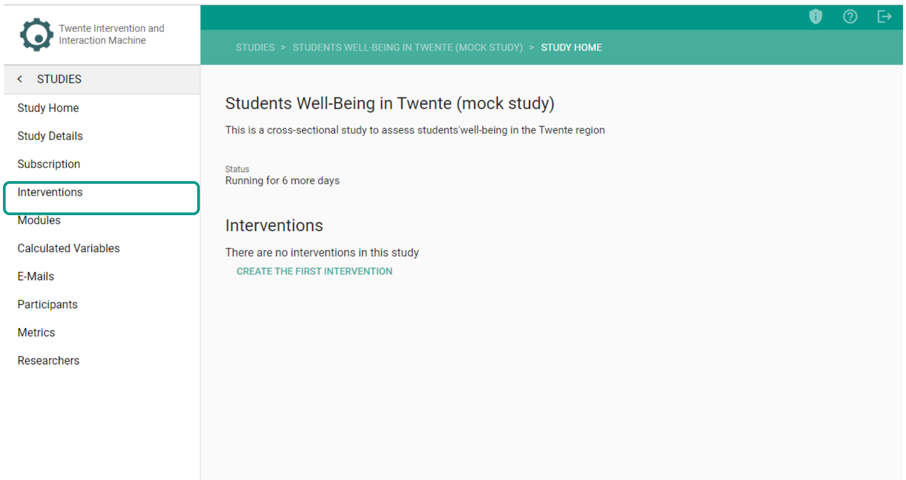
Within your study dashboard, you first need to create an **intervention**.

CREATING INTERVENTIONS

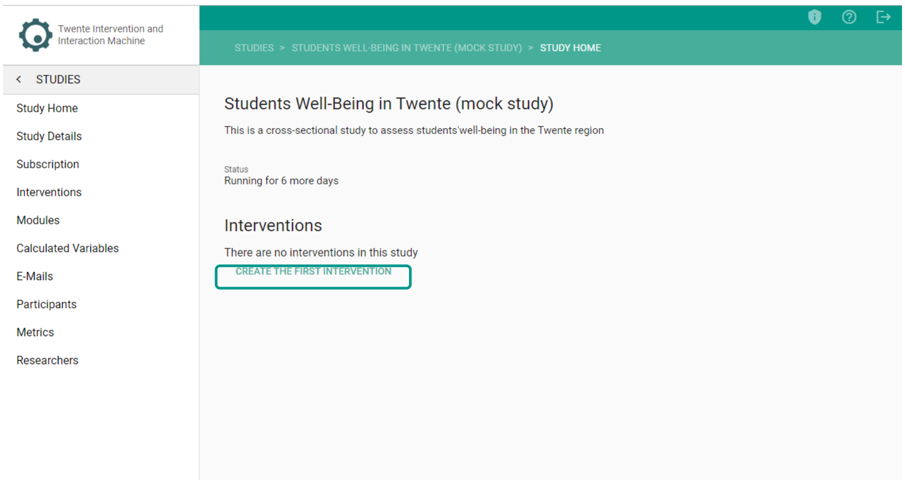
Interventions are the conditions within your research, e.g., *control and experimental groups, pre- and posttests,* etc.

To create your first intervention, follow these steps:

1. On the sidebar, click on the – INTERVEVENTION – page.

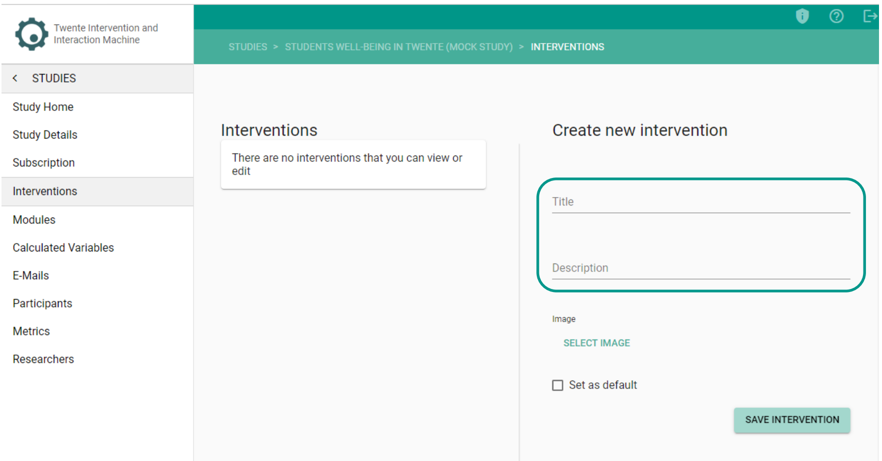


2. Click on – CREATE THE FIRST INTERVENTION –.



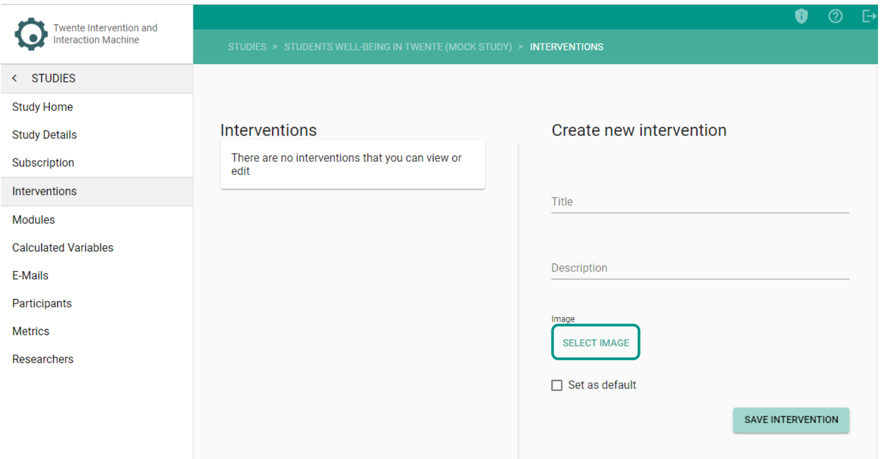
3. In – TITLE –, name your intervention (e.g., Control Group, Experimental Group, etc.).*
4. In – DESCRIPTION –, specify your intervention (e.g., control group for study SWBT).*

* The title and description are meant for organizational purposes only and will not be visible to participants.



ADDING AN IMAGE (OPTIONAL)

5. Click on – SELECT IMAGE –.

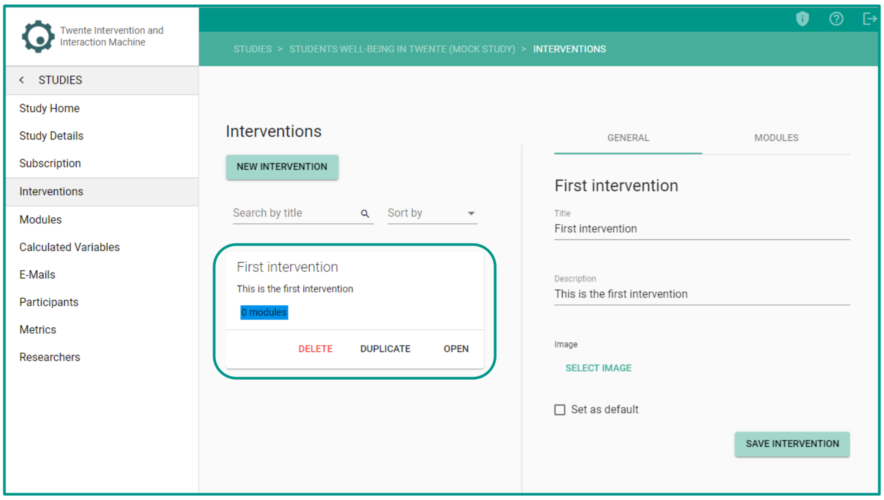


For optimal results in mobile devices, images should have a resolution of at least 1500 pixels.

FINALIZING CREATION OF INTERVENTION

6. Click on – SAVE INTERVENTION –.
   - The Intervention page will be updated.

Now the Intervention page will show you a card for your intervention. You can *open, duplicate* or *delete* your intervention.



When you click on open, your intervention details will open on the right side of the screen. Here, for the selected intervention, you can – SET AS DEFAULT –. This means that once the participant is subscribed to the study they will be automatically assigned to this intervention.

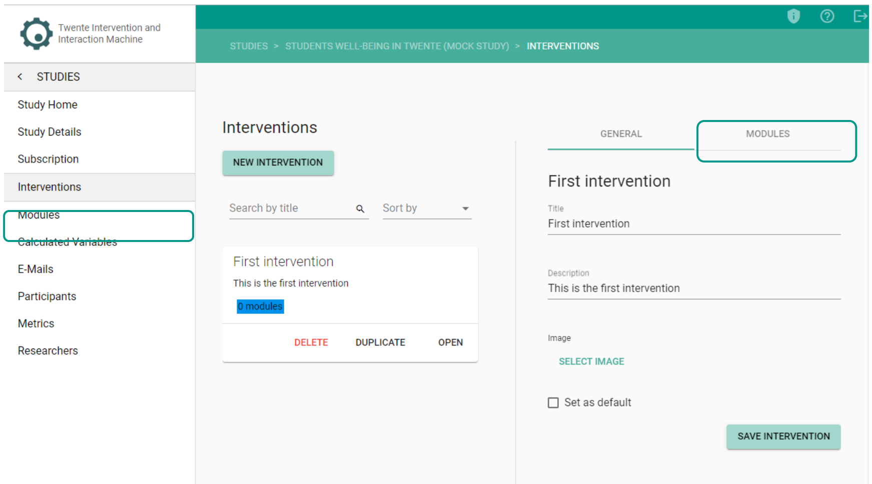
Within the created intervention, you can add **modules** to your intervention. If you already have existing **modules**, see the [Adding Existing Modules to Interventions](#) section.

CREATING MODULES

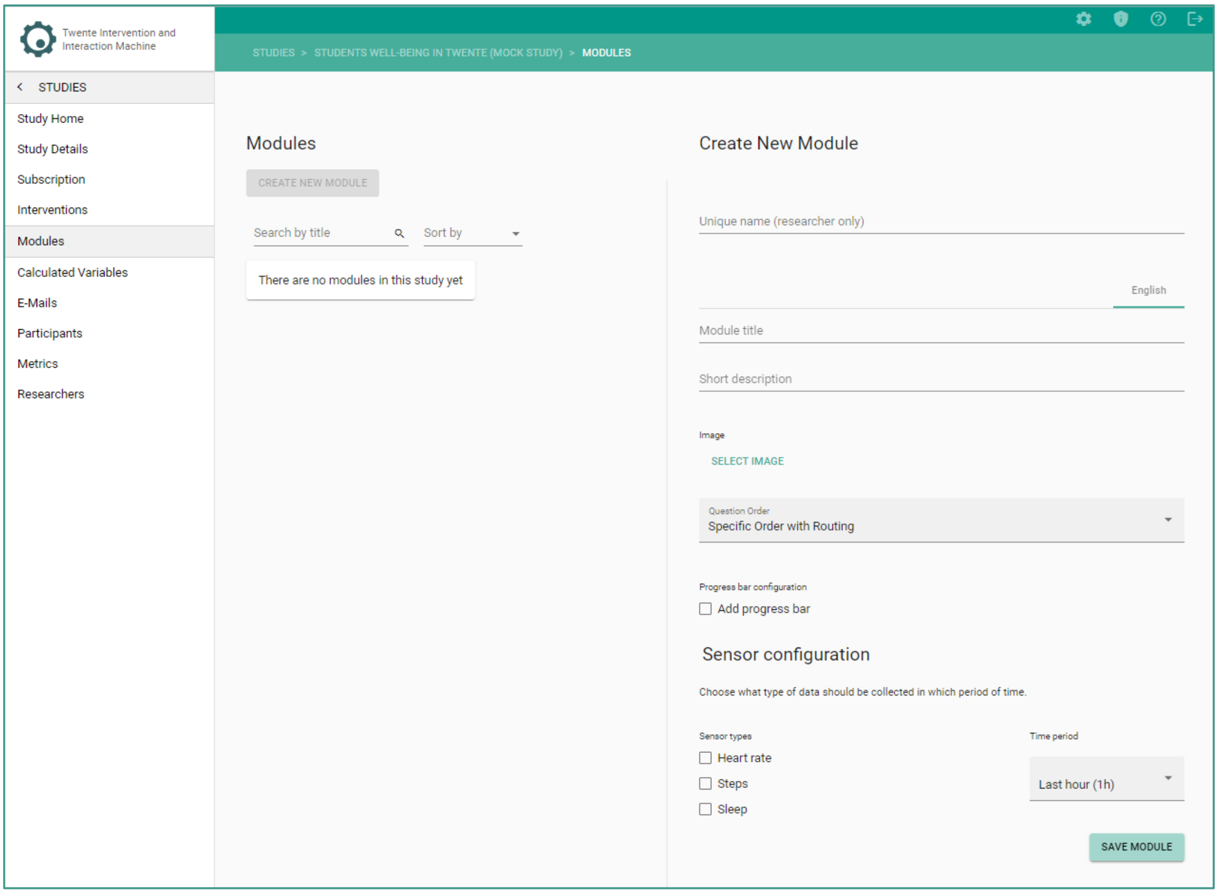
A Module is a collection of survey items within your research. These collections help you organize your questions in groups that are easy to manage during your study.

To create a Module, follow these steps:

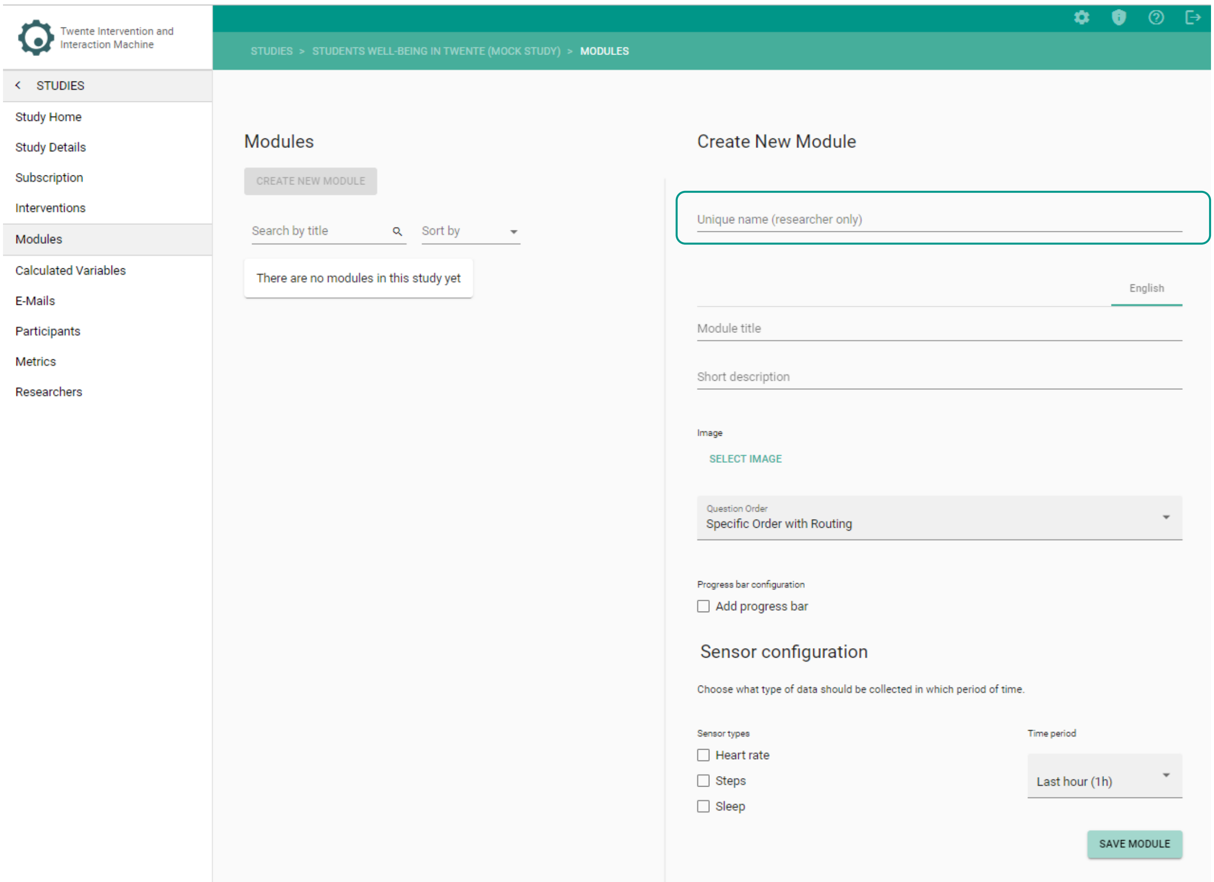
1. On the sidebar, click on – MODULES –. Alternatively, you can click on the – MODULES – tab on the Interventions page.



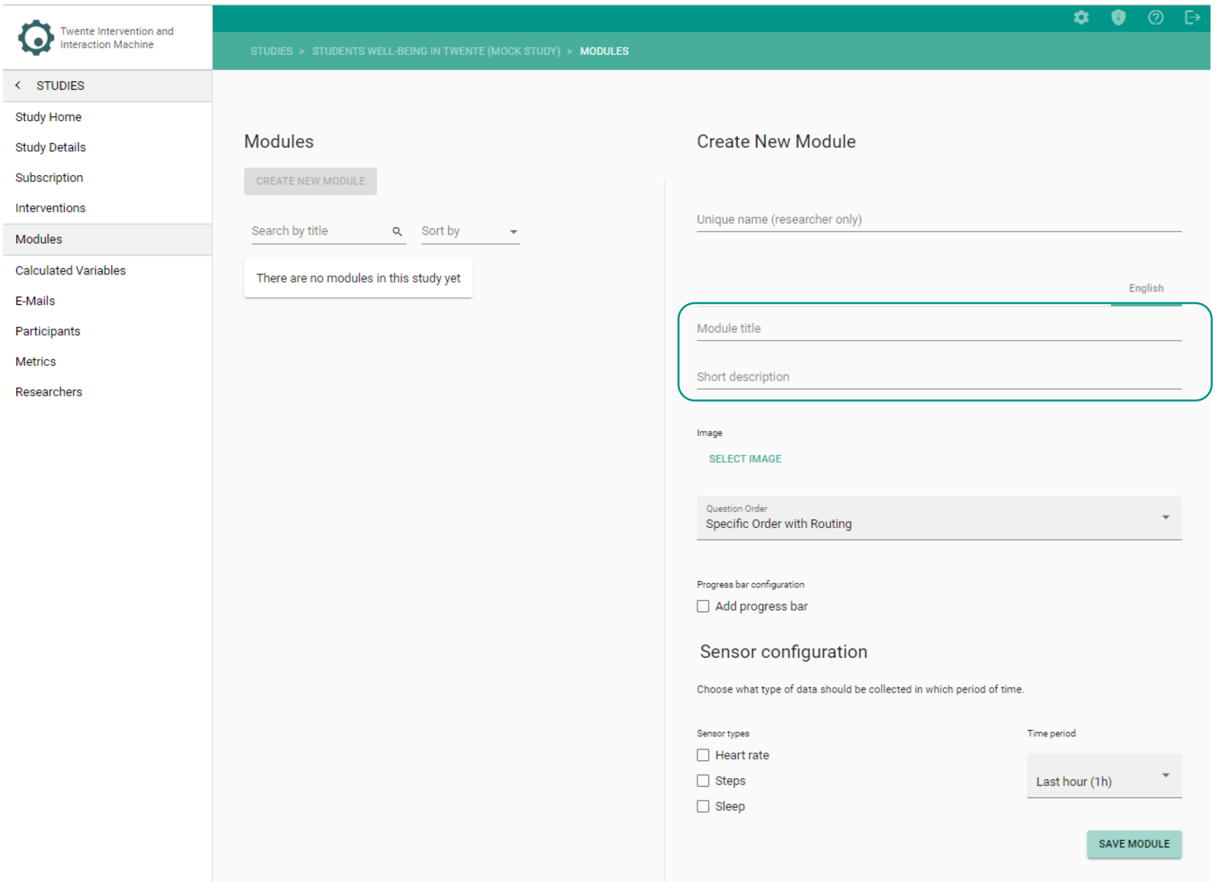
The following page will open:



2. Fill in the – UNIQUE NAME – field. This is only visible to you, and you can name it after a construct or identifier you choose. This will help you to manage your modules easily within the study.

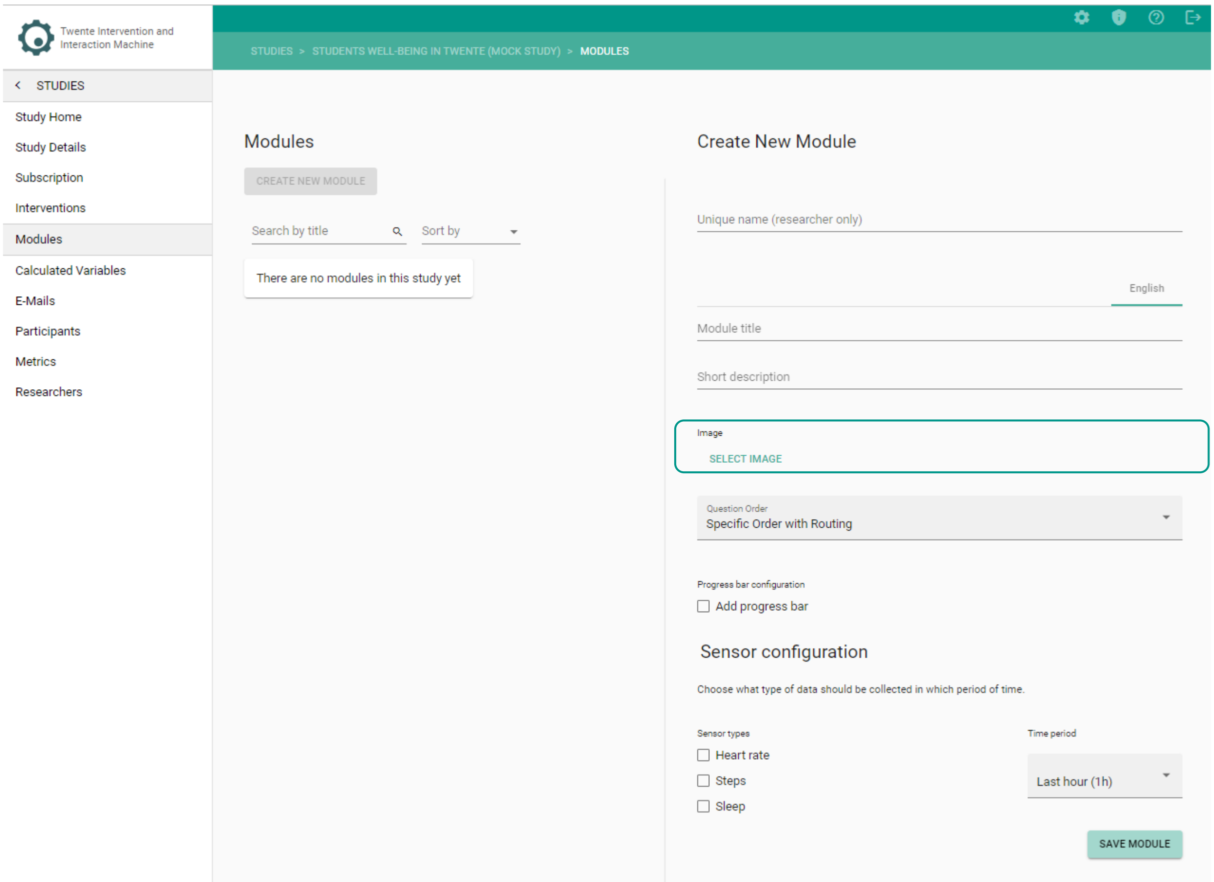


3. Fill in the – MODULE TITLE – and its – SHORT DESCRIPTION –. This might also be visible to participants and will help them understand the different segments within the survey.


Twente Intervention and Interaction Machine
STUDIES > STUDENTS WELL-BEING IN TWENTE (MOCK STUDY) > MODULES
STUDIES
Study Home
Study Details
Subscription
Interventions
Modules
Calculated Variables
E-Mails
Participants
Metrics
Researchers
Modules
CREATE NEW MODULE
Search by title
Sort by
There are no modules in this study yet
Create New Module
Unique name (researcher only)
English
Module title
Short description
Image
SELECT IMAGE
Question Order
Specific Order with Routing
Progress bar configuration
Add progress bar
Sensor configuration
Choose what type of data should be collected in which period of time.
Sensor types
Heart rate
Steps
Sleep
Time period
Last hour (1h)
SAVE MODULE

ADDING AN IMAGE (OPTIONAL)

1. Click on – SELECT IMAGE –.



For optimal results in mobile devices, images should have a resolution of at least 1500 pixels.

CHOOSING QUESTION ORDER

TIIM allows you to choose among three different configuration of question order for presenting your module items within a survey. The question order has to be setup right from the beginning, when creating a new module. The three different question order configurations are:

1. Specific Order with Routing

Items in a module will be presented in a predefined order. This predefined order follows the order to which the items were created within the module. Scenario: Five items are created in this module: Participants will be presented with item 1 – item 2 – item 3 – item 4 – item 5.

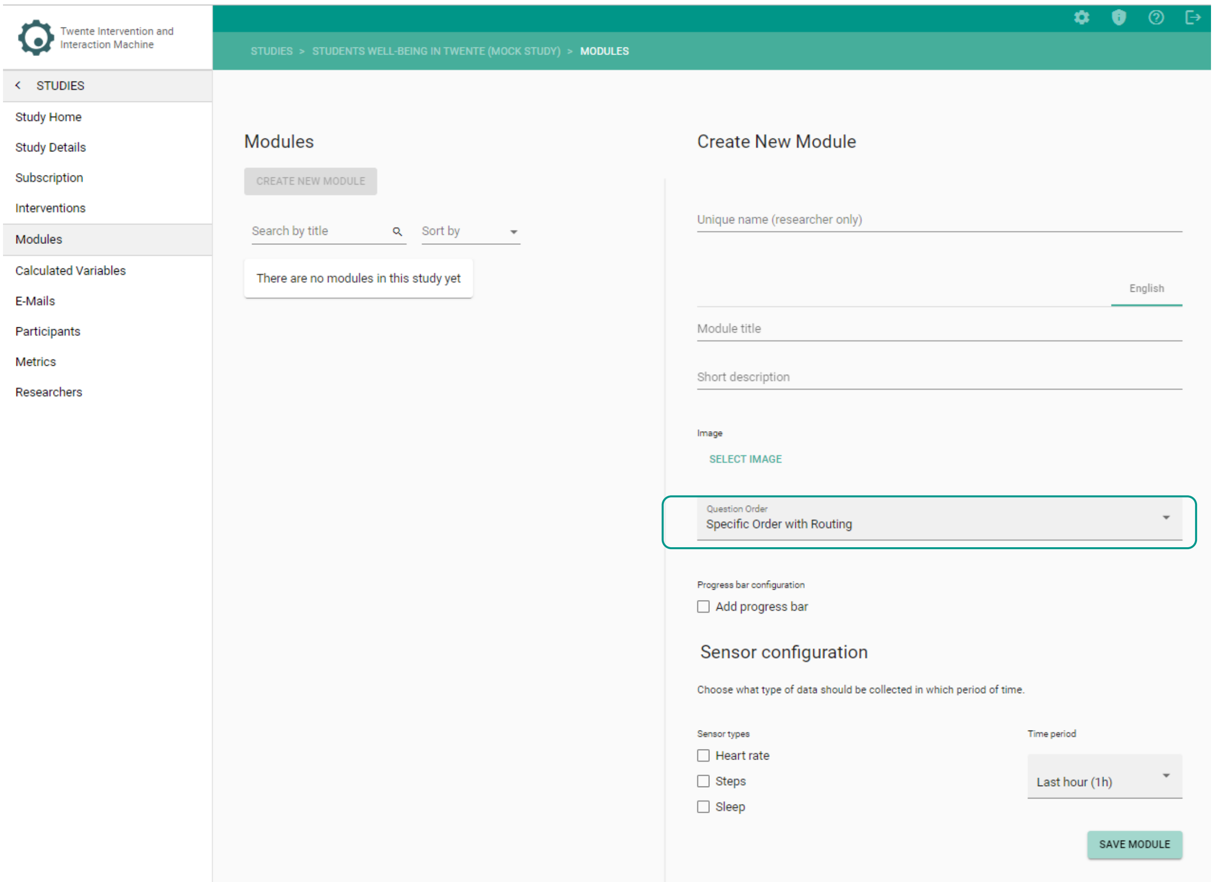
2. Randomization per Module

The order of items within a specific module will be randomized for each participant in the survey. Each participant in the study therefore gets the items in different orders. Scenario: Five items are created in this module: Participants could be presented with item 4 – item 1 – item 3 – item 5 – item 2.

3. Randomization per Category

Categories are configured at the module level and attached to individual items within that module. With one category, items within that category will be randomized. With two or more categories, items are be randomized within each category but presented in a defined order among the defined categories. The same categories will not be presented next to each unless there are no more items left in one of the categories.

- Scenario: One category with five items are created in this module.
  - Participants will be presented with category1: item 4 – category1: item 1 – category1: item 3 – category1: item 5 – category1: item 2.
- Scenario: Two categories with five items each are created in this module.
  - Participants will be presented with category1: item2 – category 2: item 5 – category 1: item 4 – category 2: item 1 – category 1: item 1 – category 2: item 3, etc.

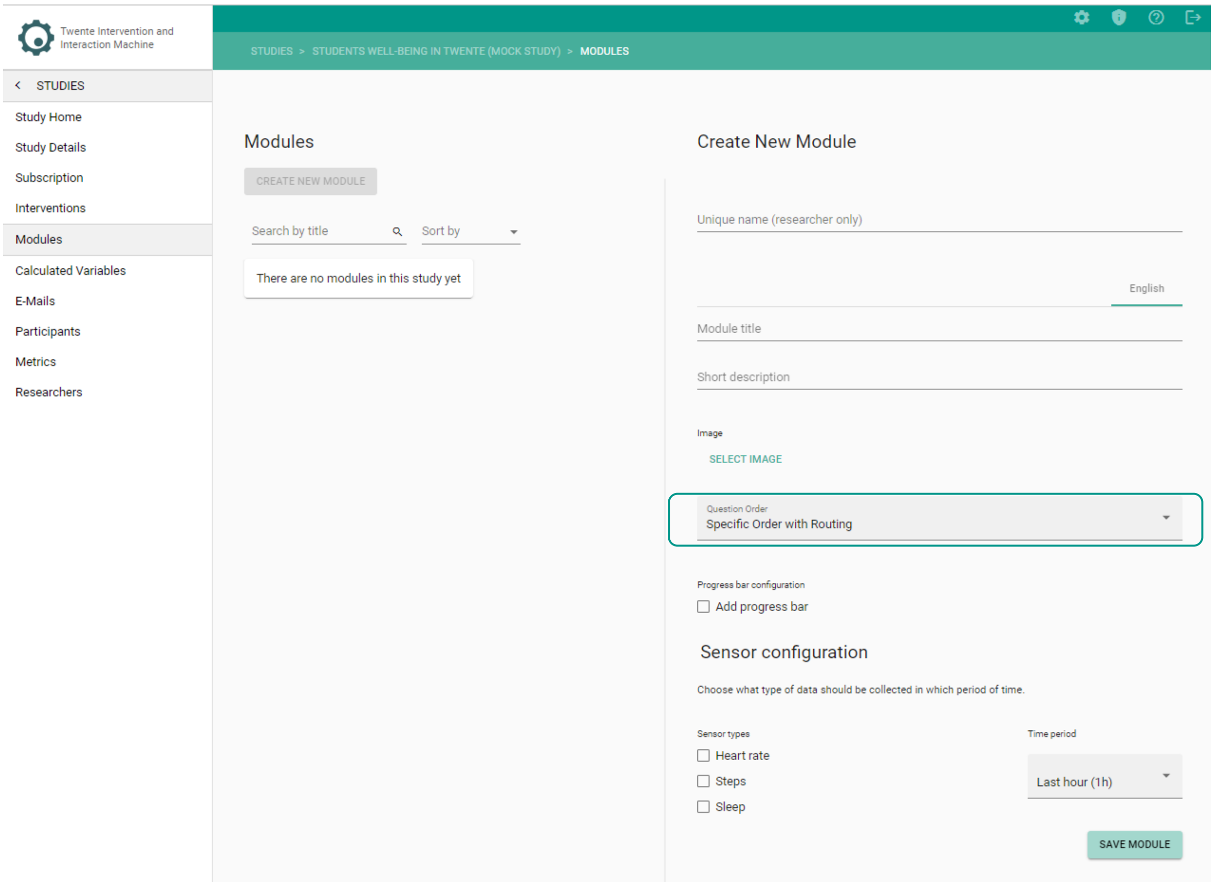


Randomization per Module and Randomization per Category are used to reduce the potential for order effects, where the order of questions may influence the responses given. This randomization can help enhance the study's flexibility and the quality of data gathered.

ADDING A PROGRESS BAR (OPTIONAL)

By selecting – ADD PROGRESS BAR – option, participants will be able to estimate how many questions they have already answered and estimate their time to complete the survey. You can see the **Progress Bar** instructional video through the following link:

https://youtu.be/W8LP3w55fPs?si=Pr0x9678FIl3CZ8Z



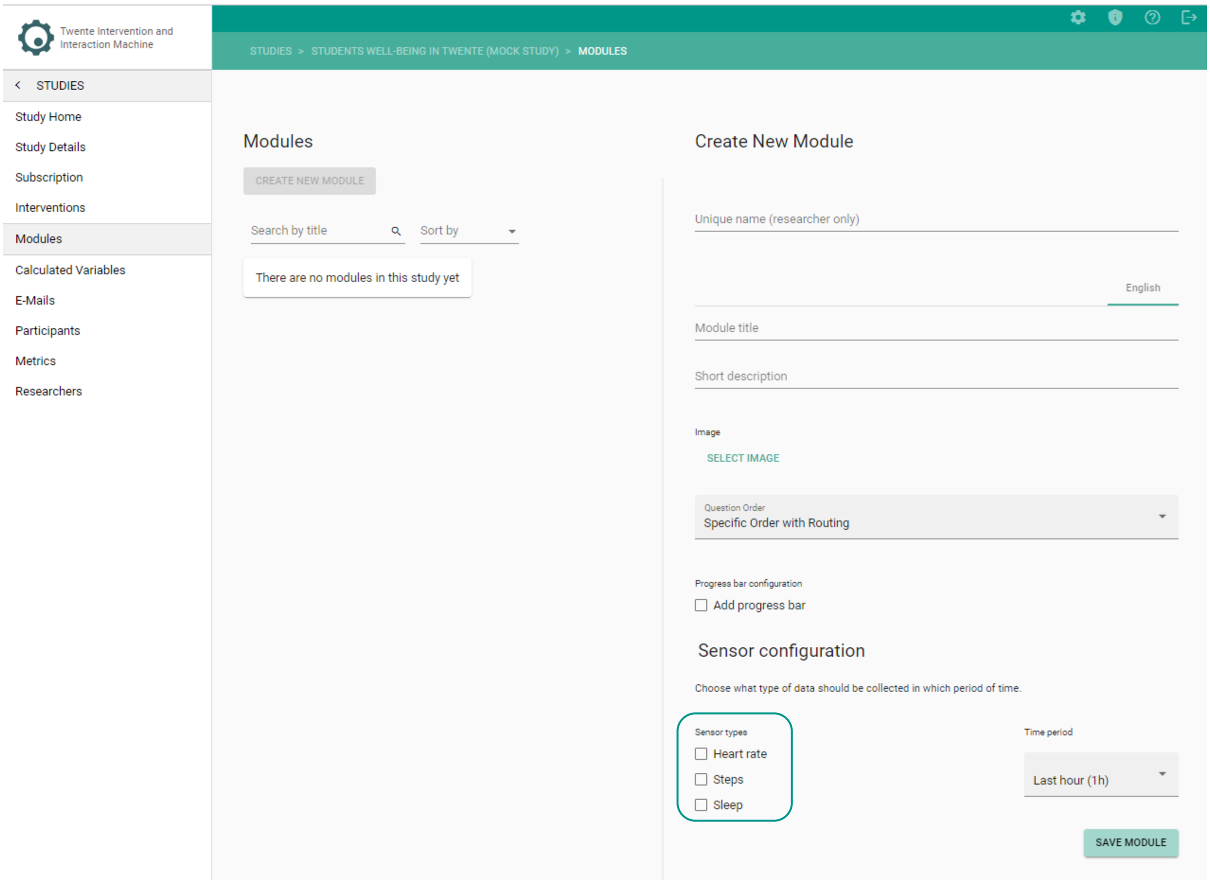
EDITING SENSOR CONFIGURATION (IF BIOMETRIC DATA COLLECTION ENABLED)

If your study opted for **Biometric Data**, you have to select which data to collect.

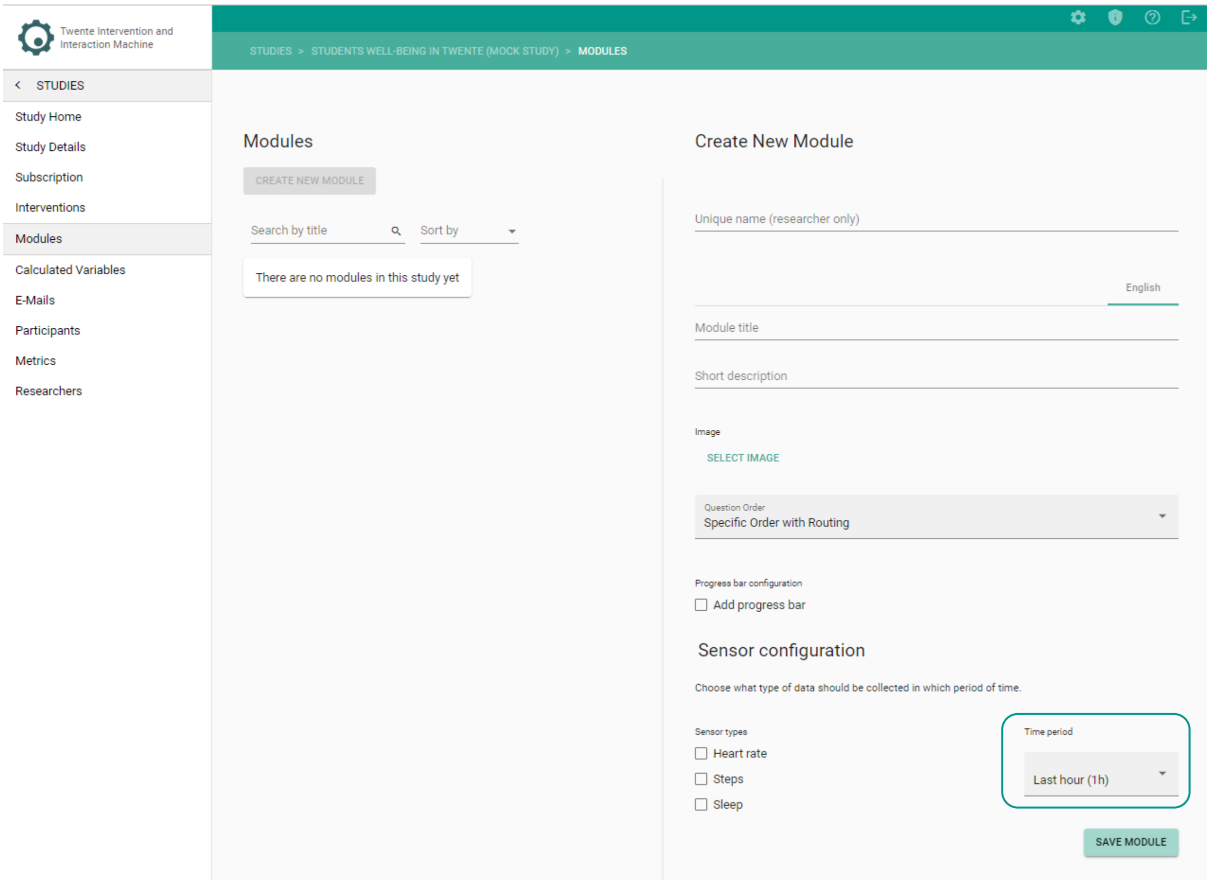
You can see the **Biometric Data** instructional video through the following link:

https://youtu.be/n75HW-6sOh4?si=_0EAbWuryZHOXJxP

1. Choose the sensor type: heart rate, steps, or sleep.



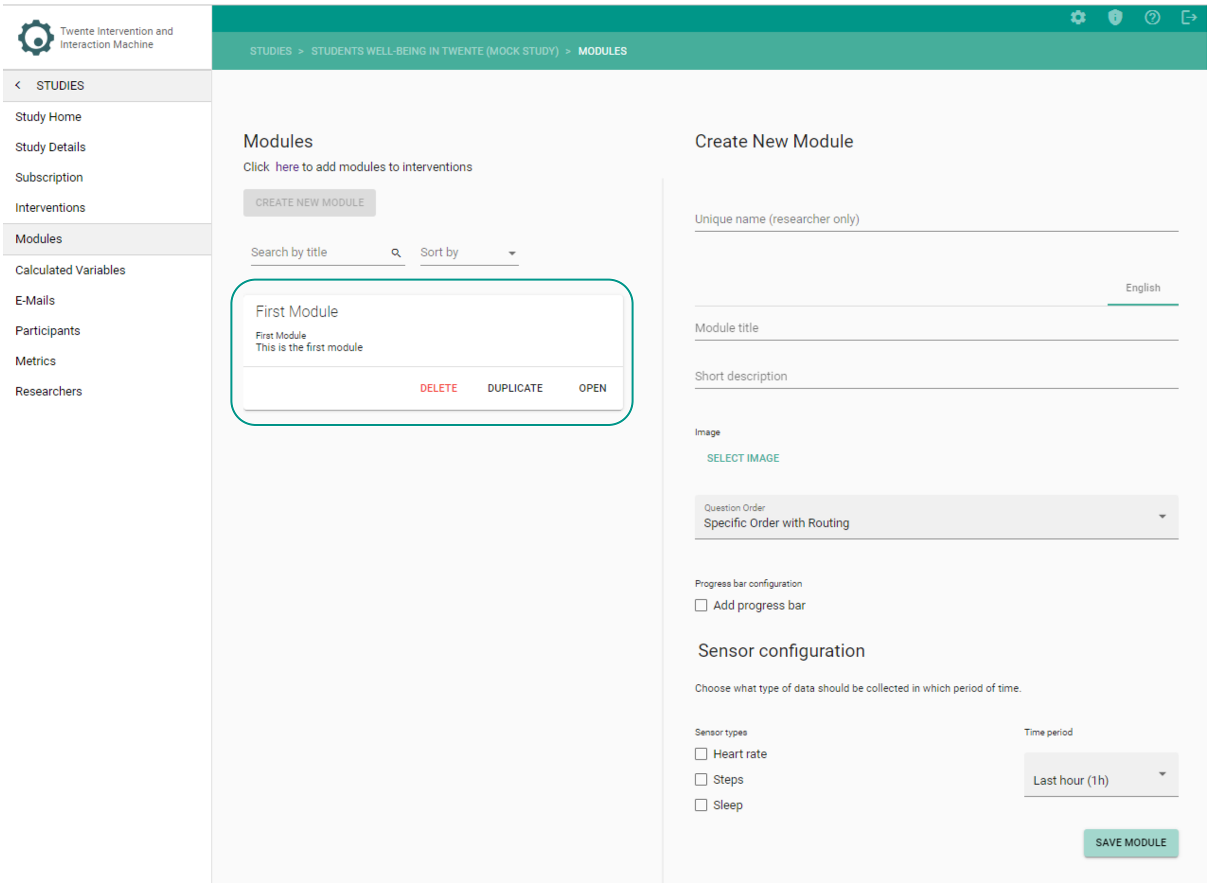
2. Establish the time period for biometric data collection.



iOS phones can only share sleep and awake data, whereas Android phones can share the type of sleep (light, deep or rem).

FINALIZING CREATION OF MODULE

1. Click on – SAVE MODULE –.
   - The module page will be updated.
2. Now the Module page will show you a card for your module. You can *open*, *duplicate* or *delete* your module.

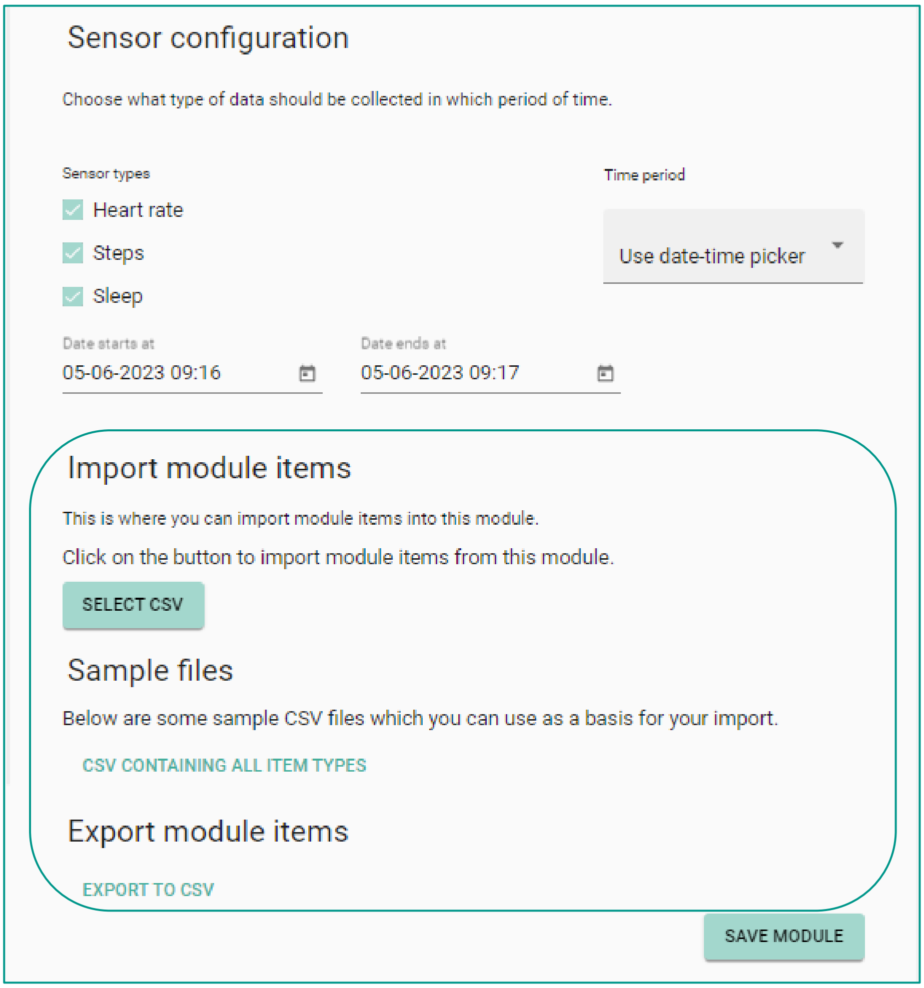


3. When you click on – OPEN –, your module details will open on the right side of the screen. You will now be able to start adding **items** to your module.

IMPORTING MODULE ITEMS

In **TIIM**, you can save and import your modules in other studies as a CSV file.

> **CSV:** A Comma Separated Values (CSV) file is a plain text file that contains a list of data. These files are often used for exchanging data between different applications. For example, databases and contact managers often support CSV files. These files can be opened in spreadsheet applications (e.g., MS Excel and Google Sheets).



The CSV file contains all the items, templates, and settings you have created for a particular module. You can easily import them in the modules page.

USING SAMPLE FILES

Sample Files is when you export data type examples from a CSV format. Such as all the item types that can be included in the TIIM study (e.g., statements, Likert scale, etc.) and example questions (e.g., math, science and engineering, project-based working, etc.).

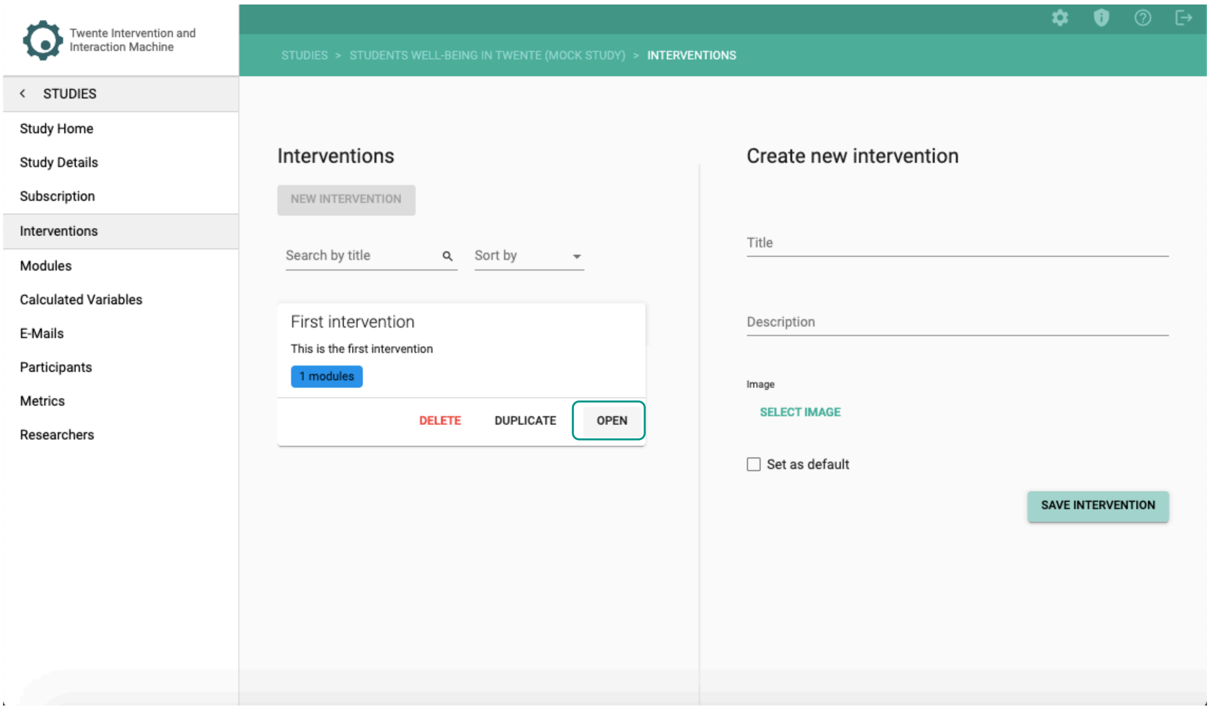
EXPORTING MODULE ITEMS

In **TIIM**, you can also save and export your modules for future use as a CSV file.

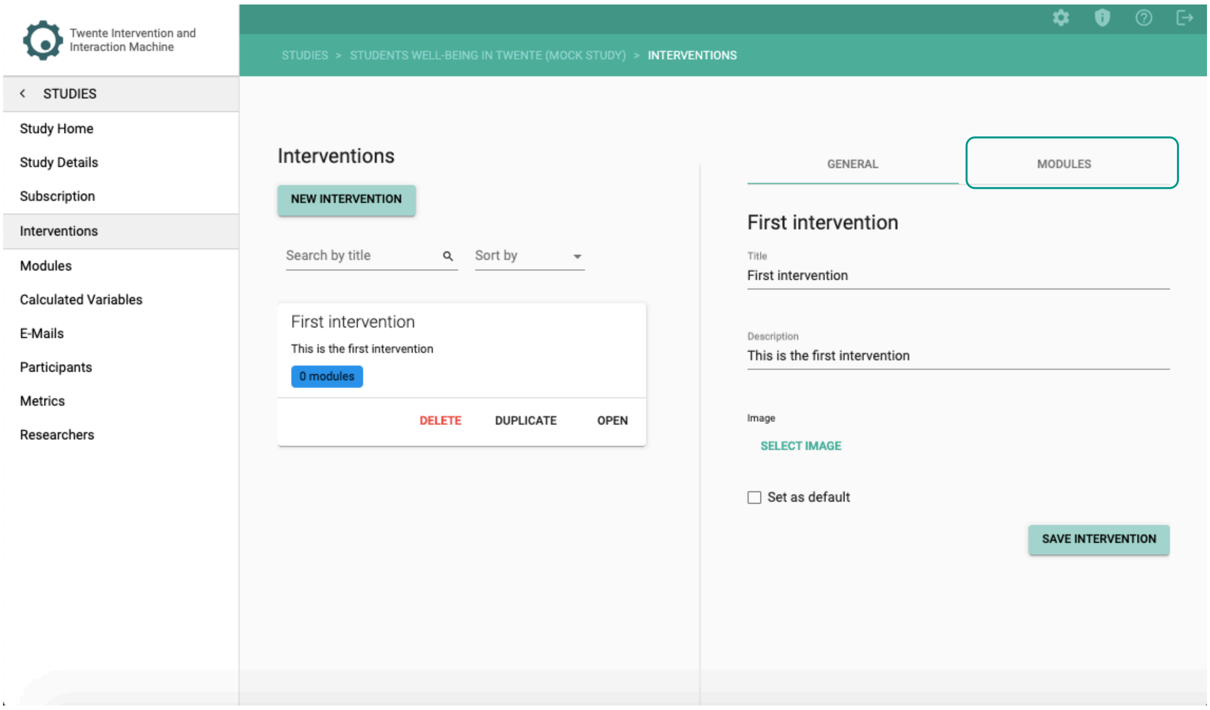
ADDING EXISTING MODULES TO INTERVENTIONS

Once you have created a few modules, you can add them to different interventions in the same study. To add existing modules to an intervention, follow these steps:

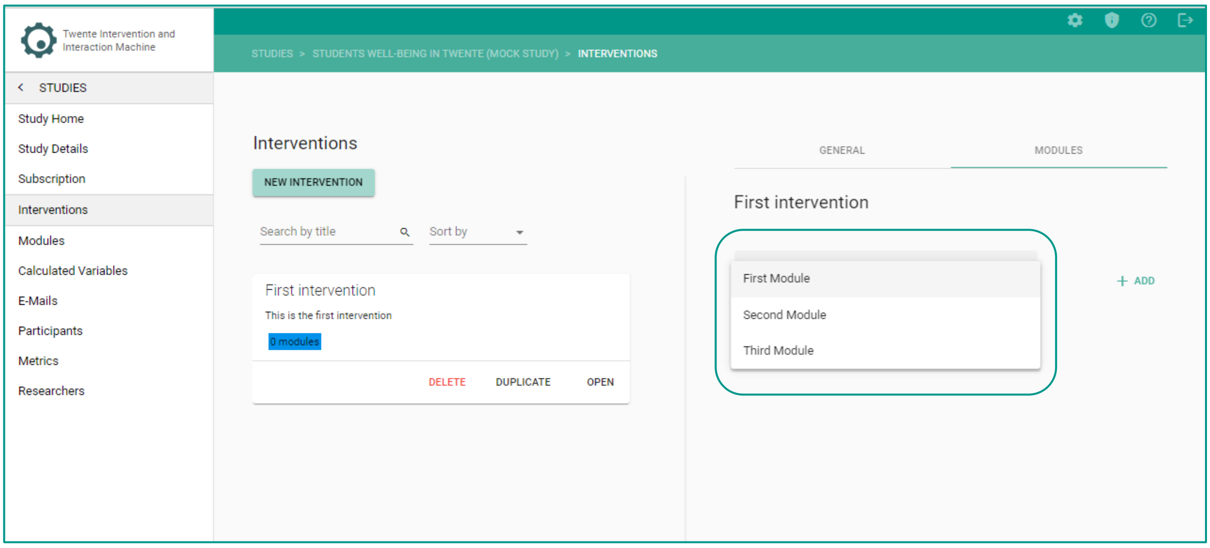
1. Within the interventions card, click on – OPEN –.



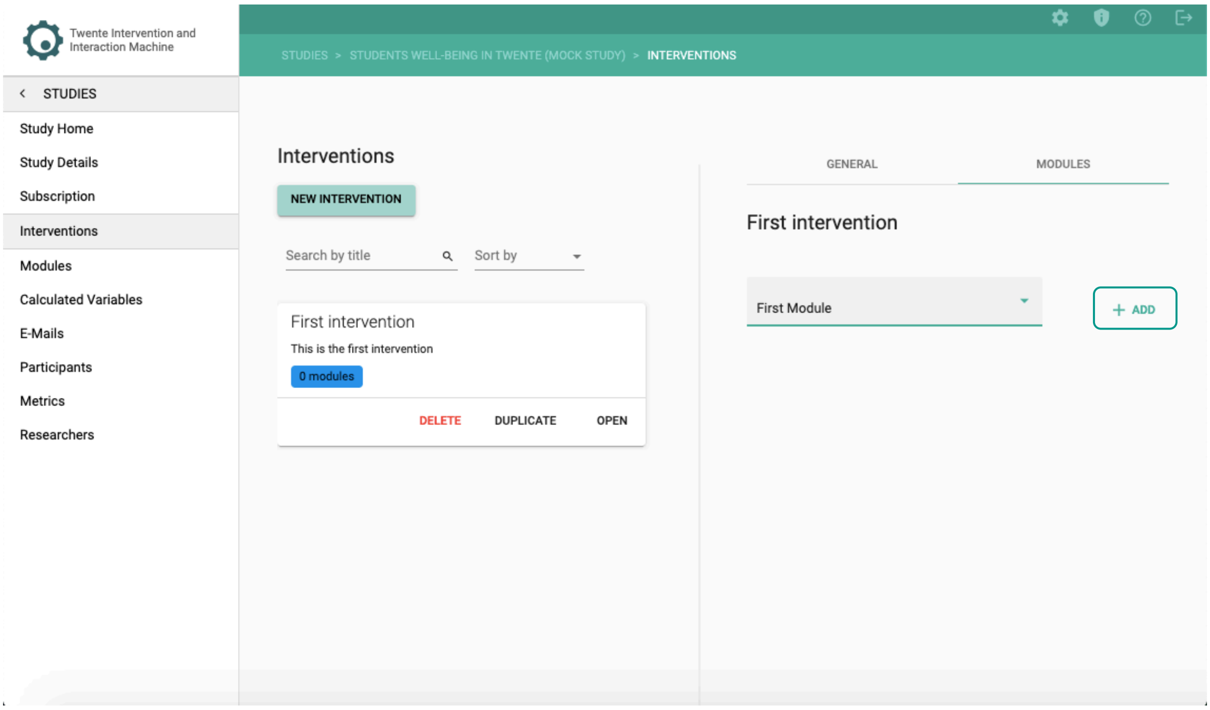
2. On the upper-right side, click on – MODULES –.



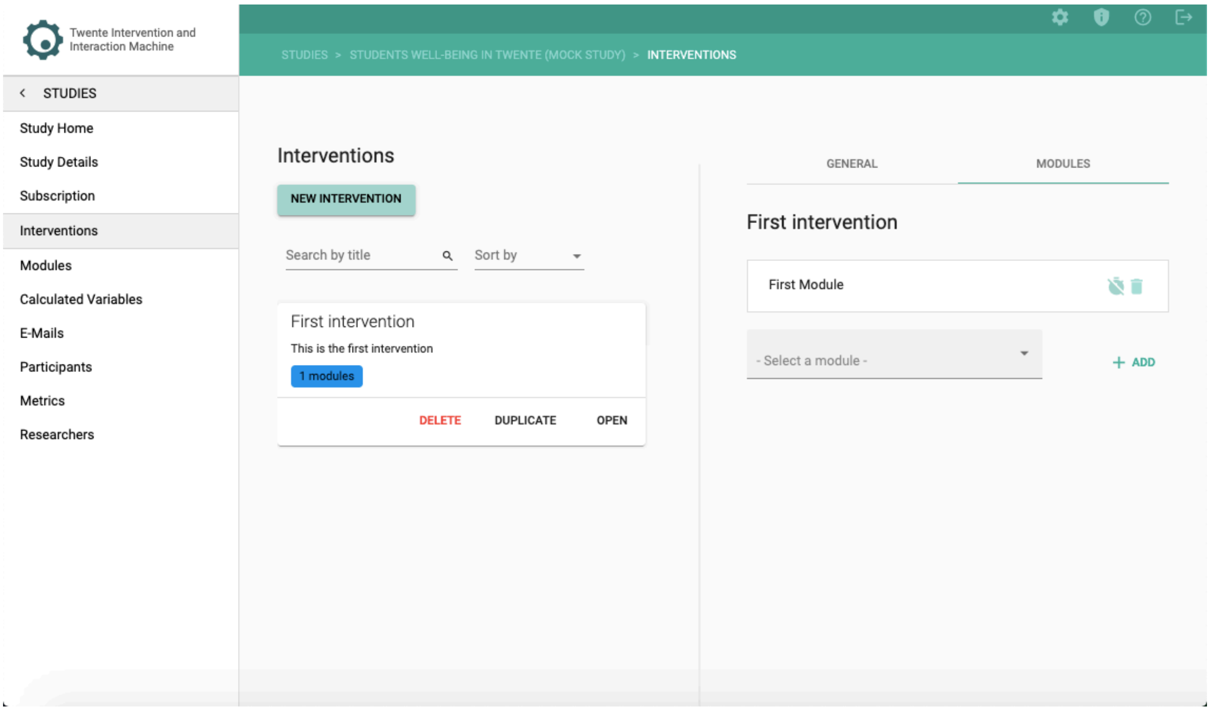
3. On the – SELECT A MODULE – dropdown field, select the desired module.



4. Click on the – + ADD – button.



The module is now added:



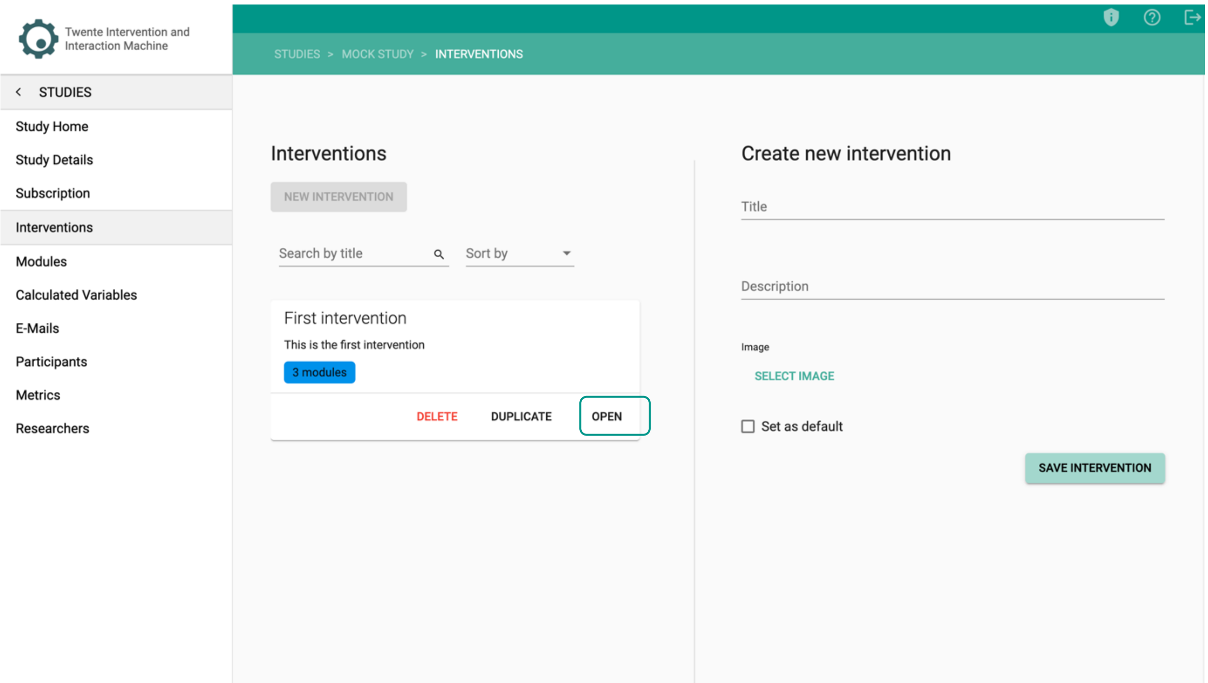
5. Repeat steps 3 and 4 for every module you want to add.

SETTING UP TIMING RULES

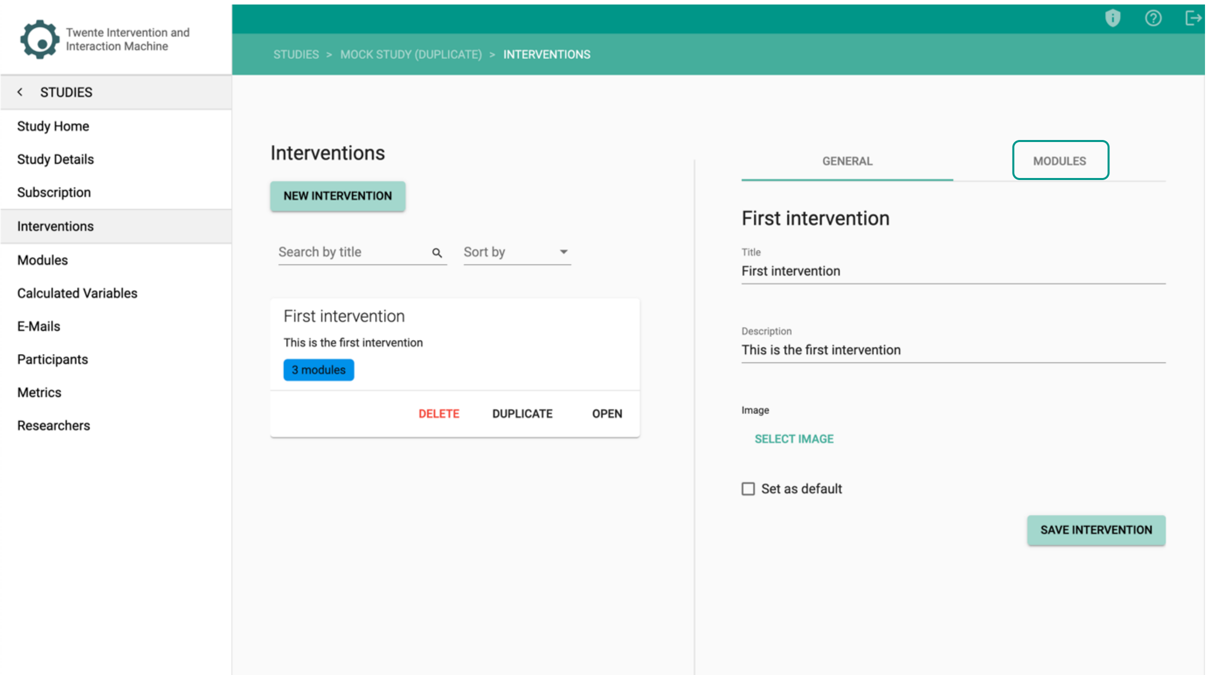
By default, all modules within an Intervention are visible to the participants once the study begins. However, you may want to set specific timers to a module, namely, **Timing Rules**. You can see the **Timing Rules** instructional video through the following link:

https://youtu.be/cWkduqyjUvA?si=VIQ2mf409y0V_8fW

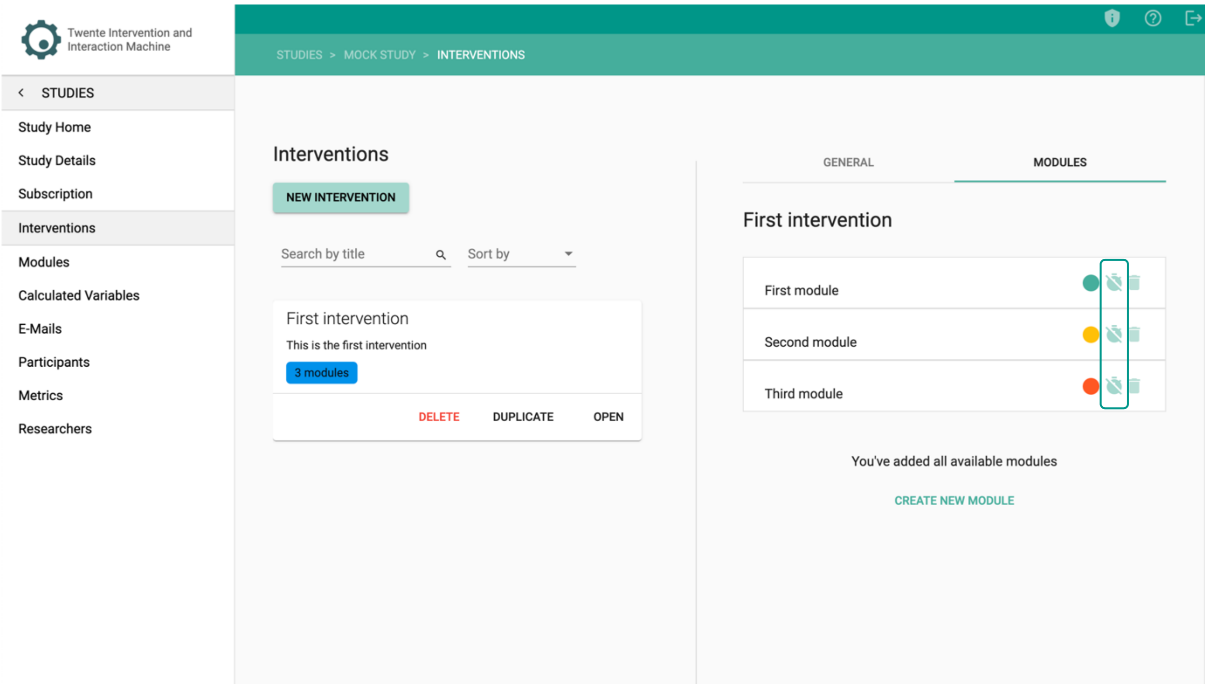
1. Within the interventions card, click on – OPEN –.



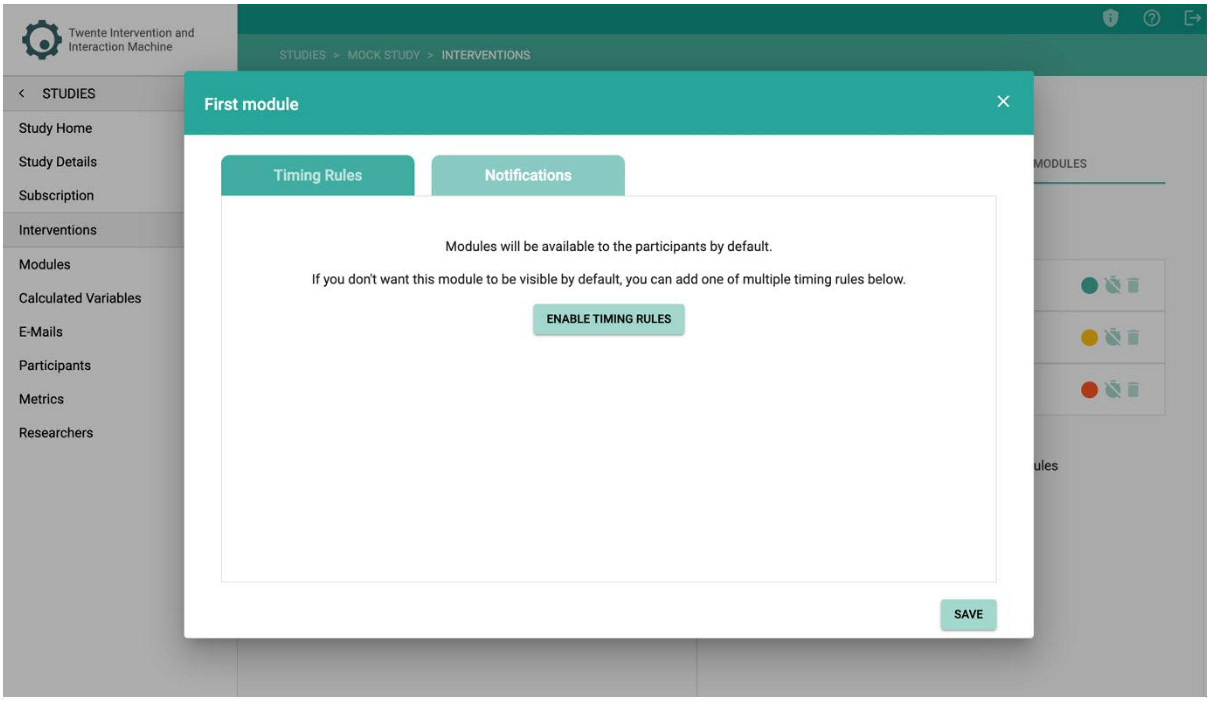
2. On the upper-right side, click on – MODULES –.



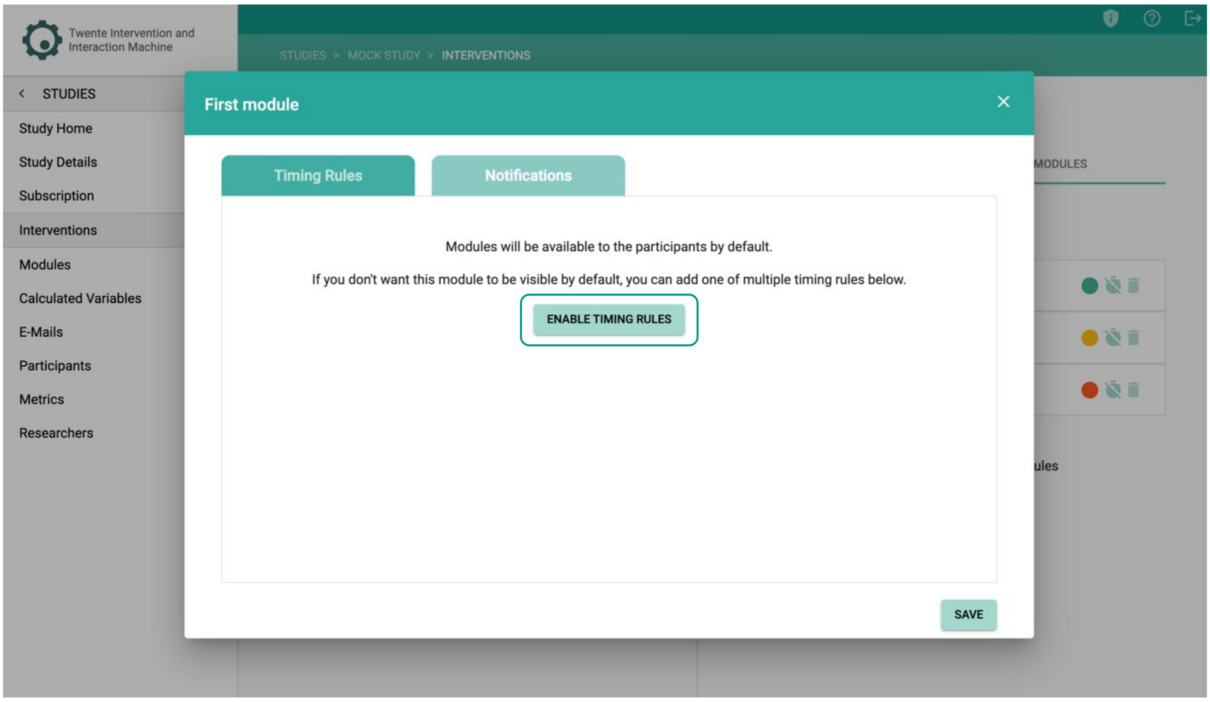
3. Click on the timer icon next to the Module that you want to add Timing Rules.



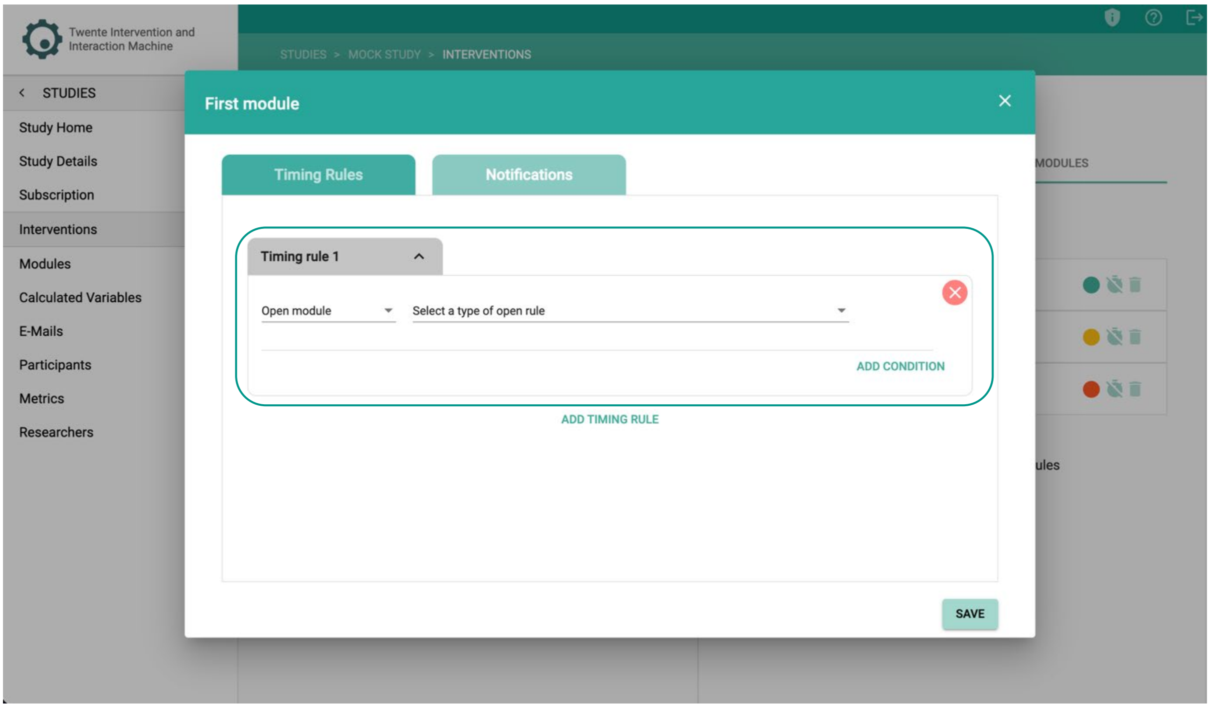
You will land on the Timing Rules tab:



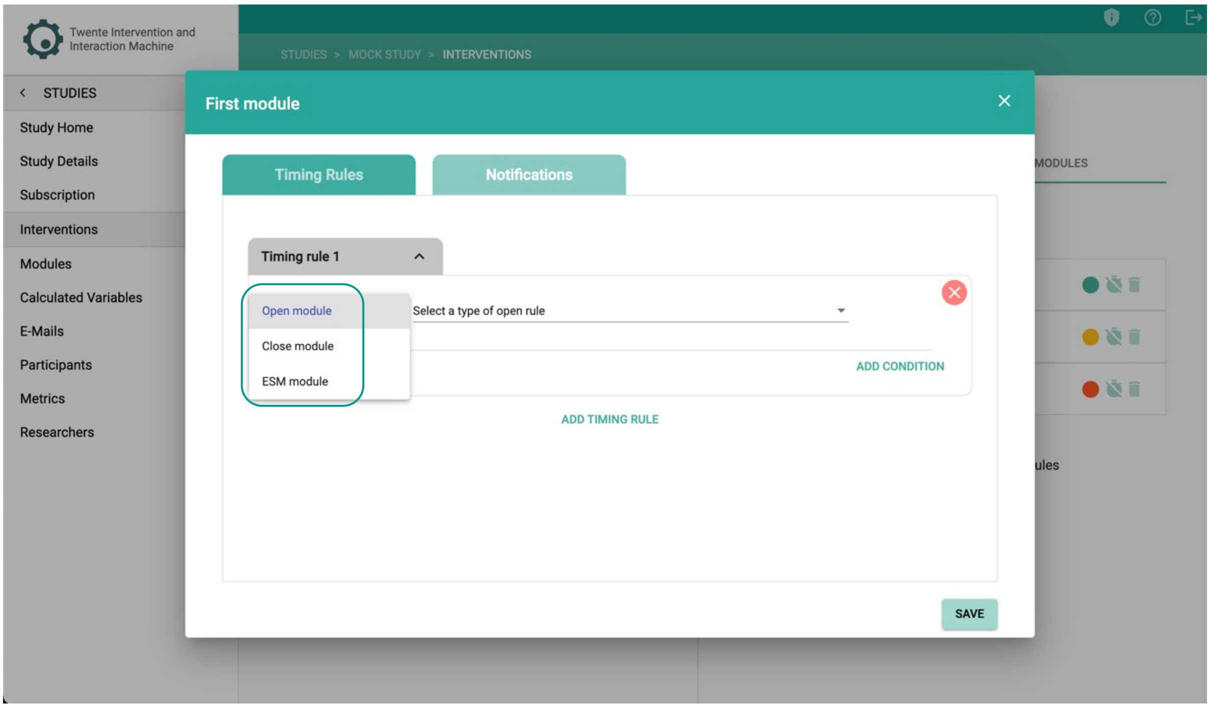
4. Click on – ENABLE TIMING RULES –.



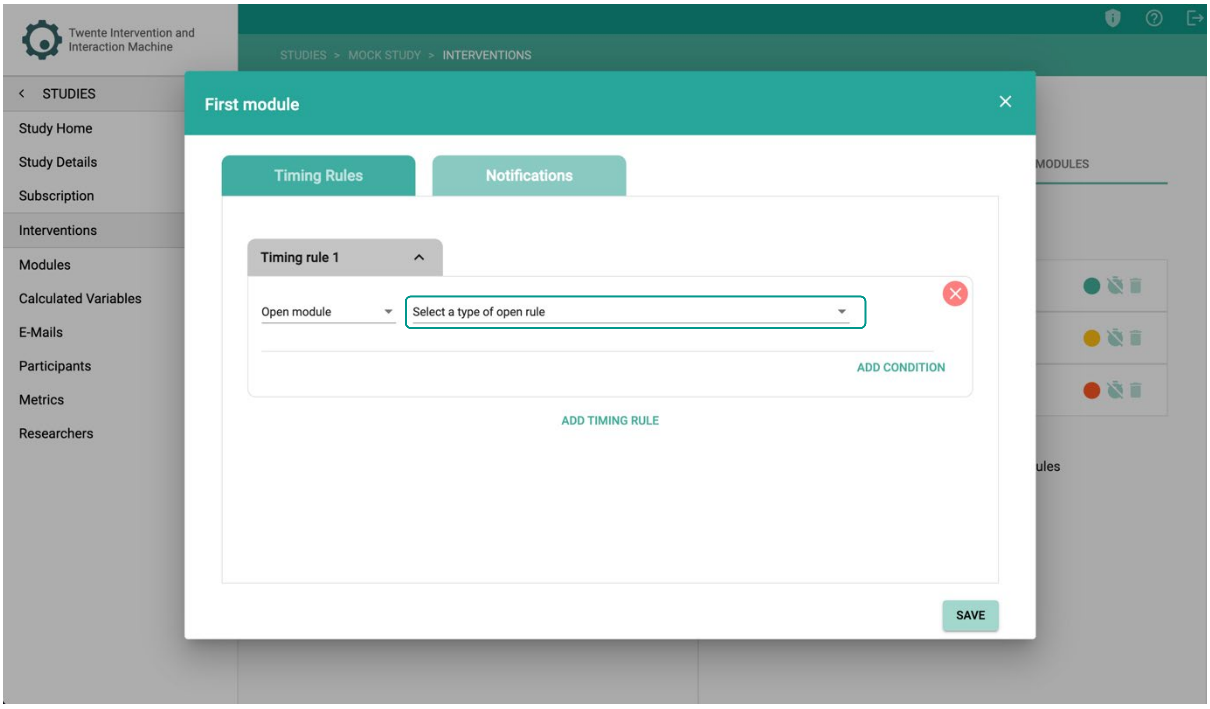
The Timing Rules tab will appear with the options for your first timing rule:



5. Choose – OPEN MODULE (set timing rule when module opens) – CLOSE MODULE (set timing rule when module closes) – or – ESM MODULE (repeats timing rules for the module).

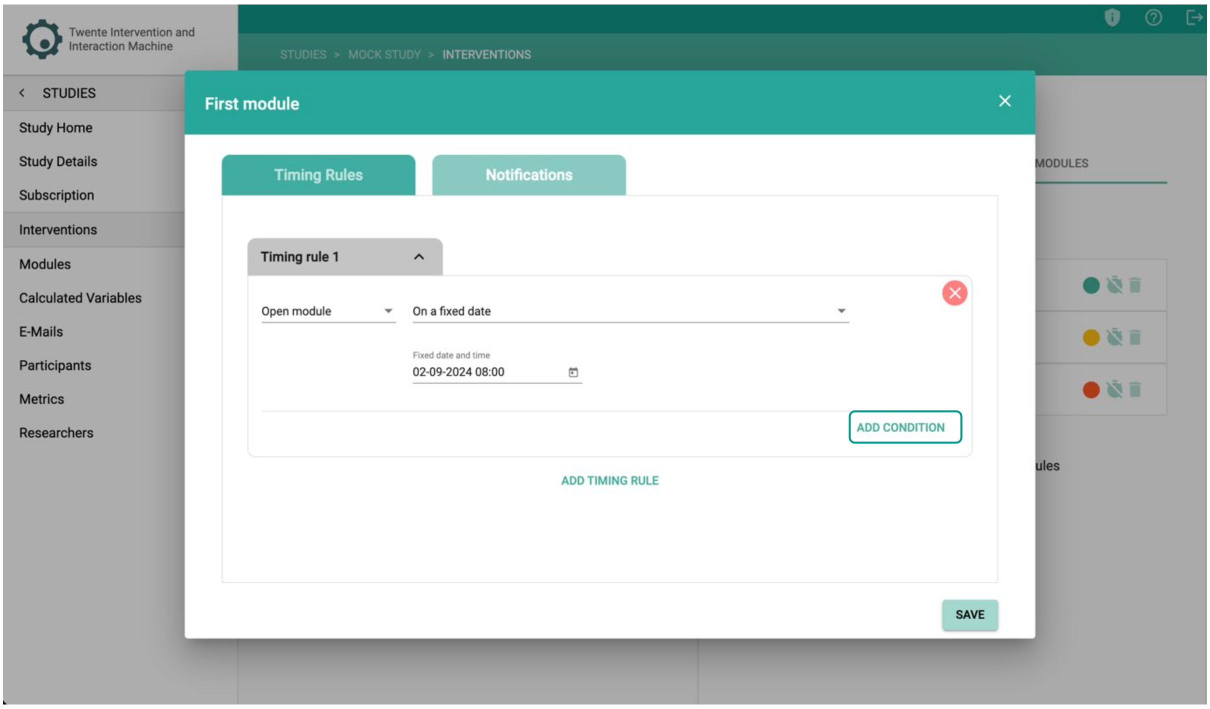


6. Select the type of timing rule.

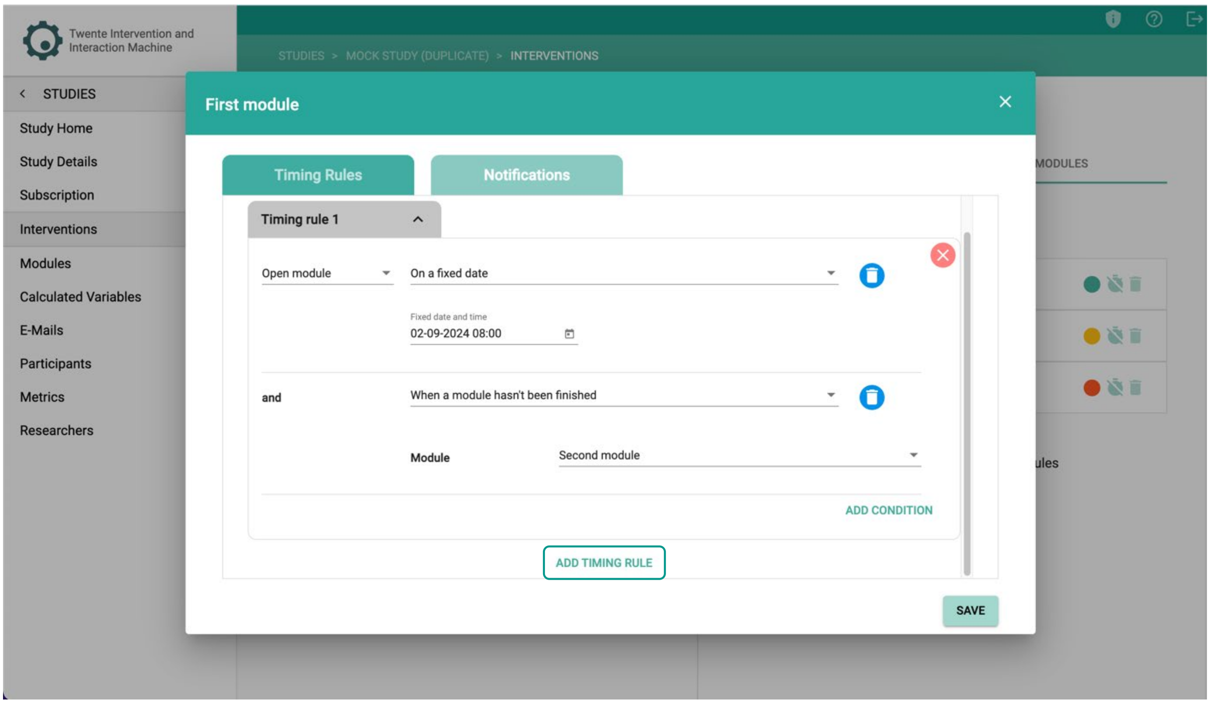


For a complete overview of all timing rules, see Appendix B.

7. For both open and close module, you can add another condition to the same timing rule by clicking on – ADD CONDITION –. Repeat this process as necessary.

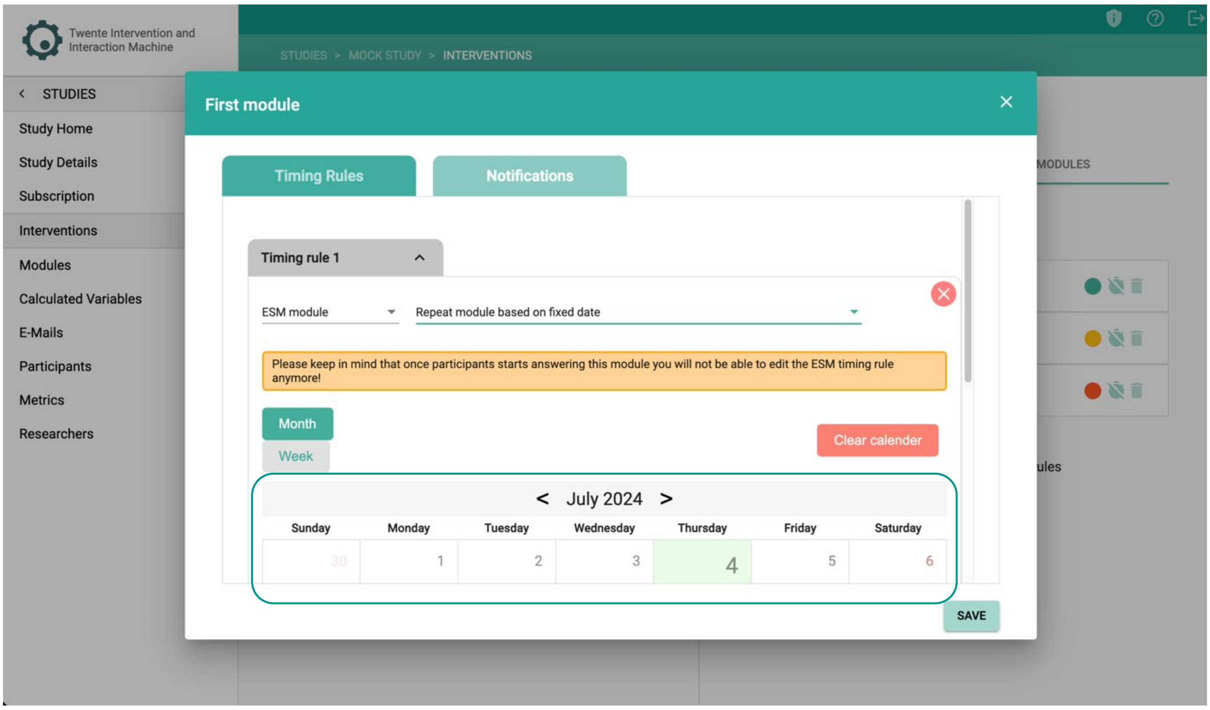


8. To add an alternative timing rule, click on – ADD TIMING RULE –. Repeat this process as necessary.

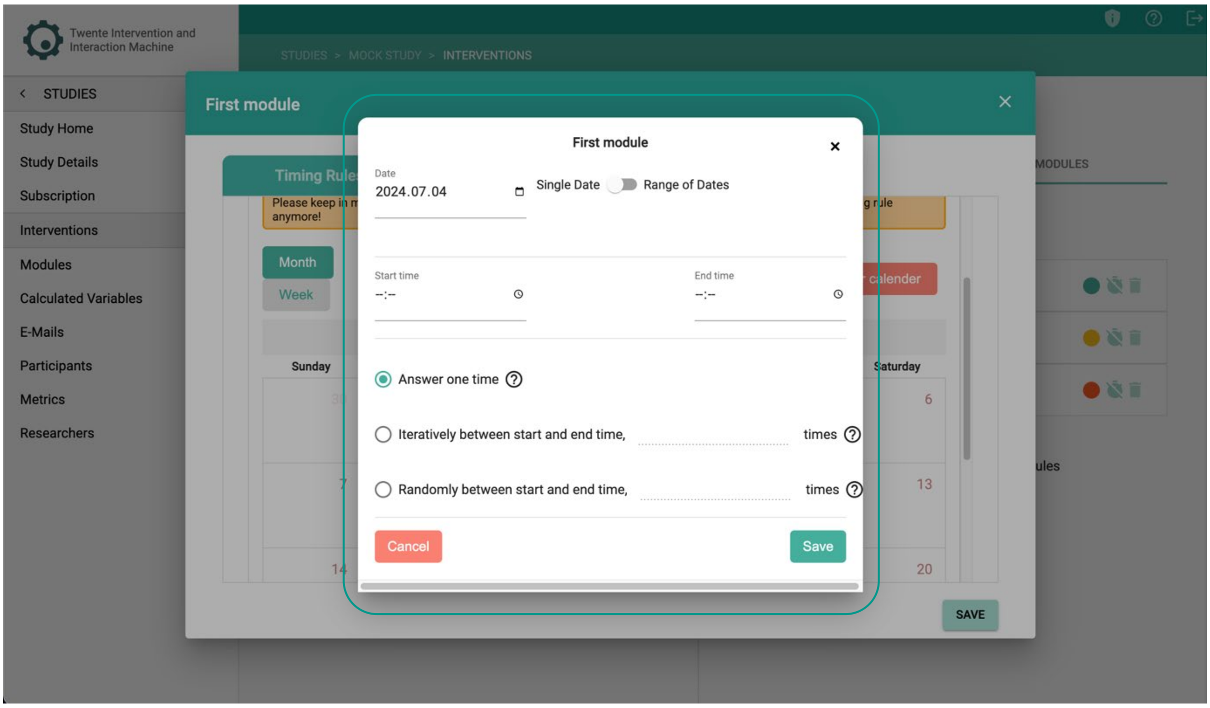


The Timing Rule that is true, will be triggered for the participant.

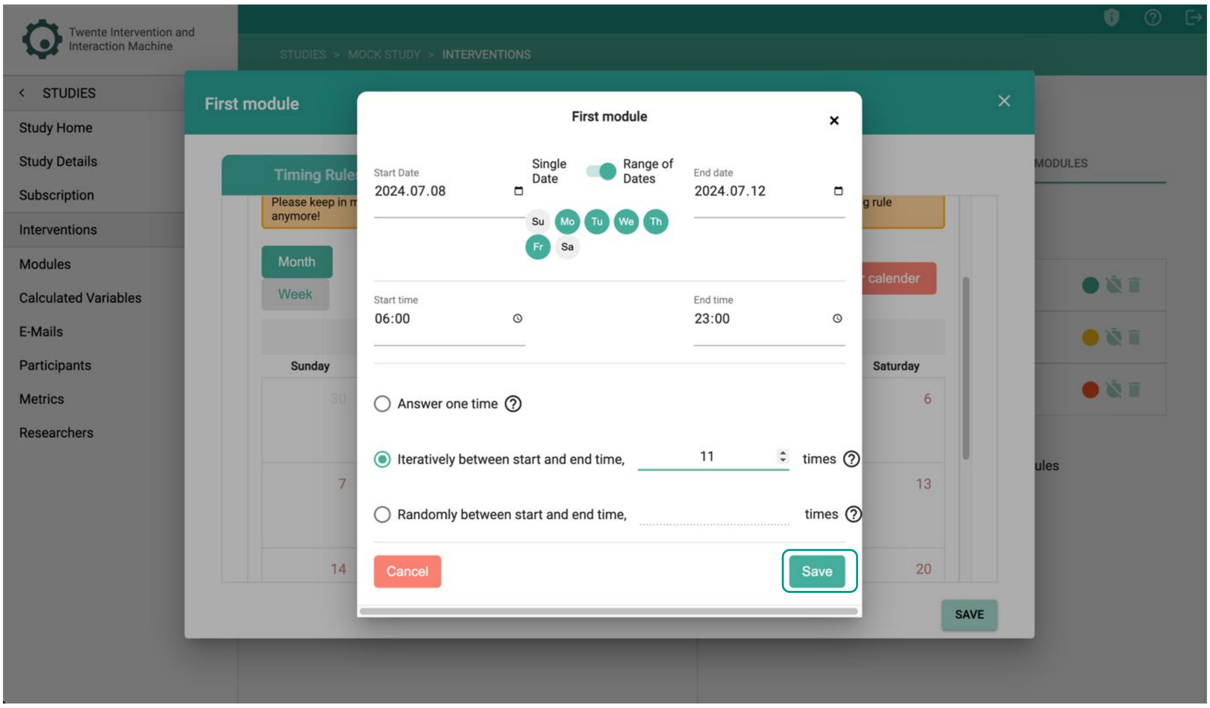
9. For an ESM module, a calendar will appear.



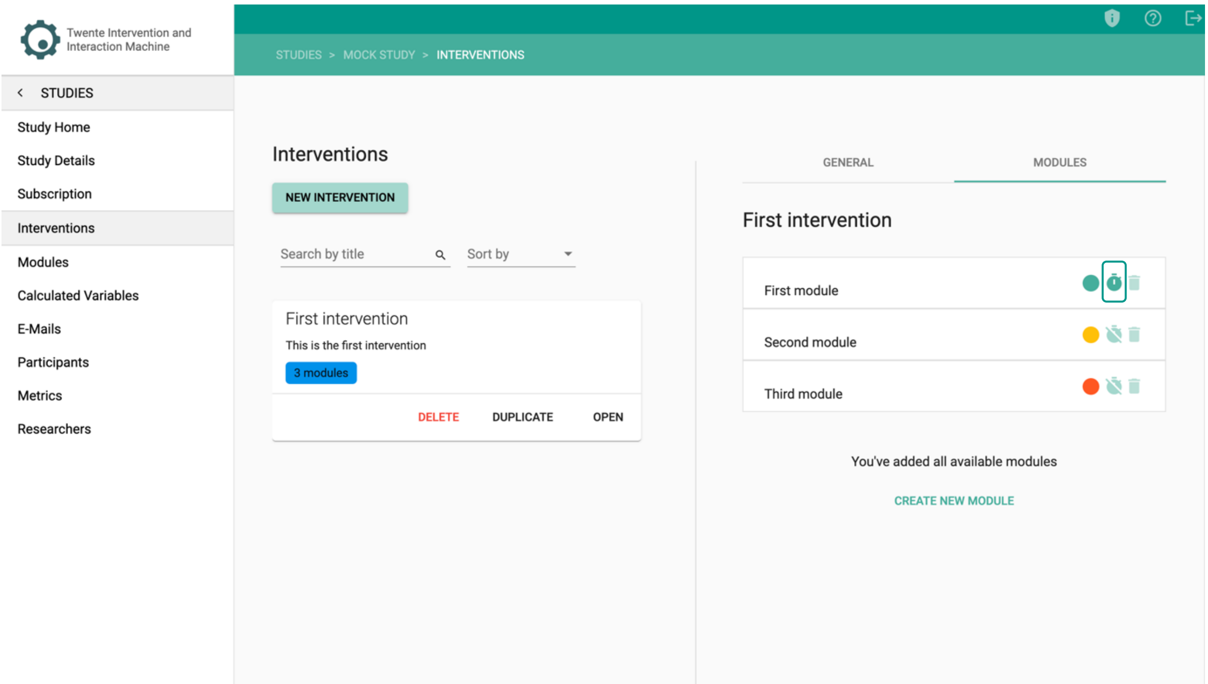
10. By clicking on a specific day in the calendar, another pop-up page opens. You can specify the conditions for the repetition of the timing rule for the ESM module.



11. Once you have finished editing any Timing Rules, click on – SAVE –.



The Timing Rules is now added:

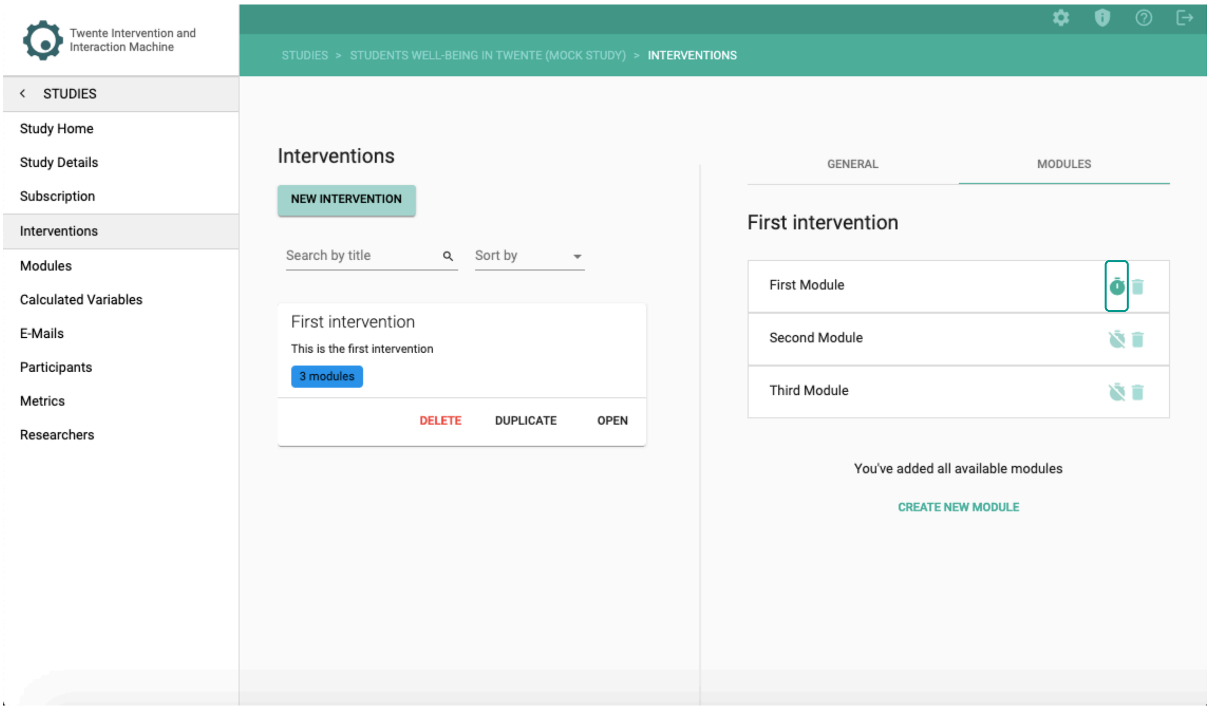


SETTING UP NOTIFICATIONS

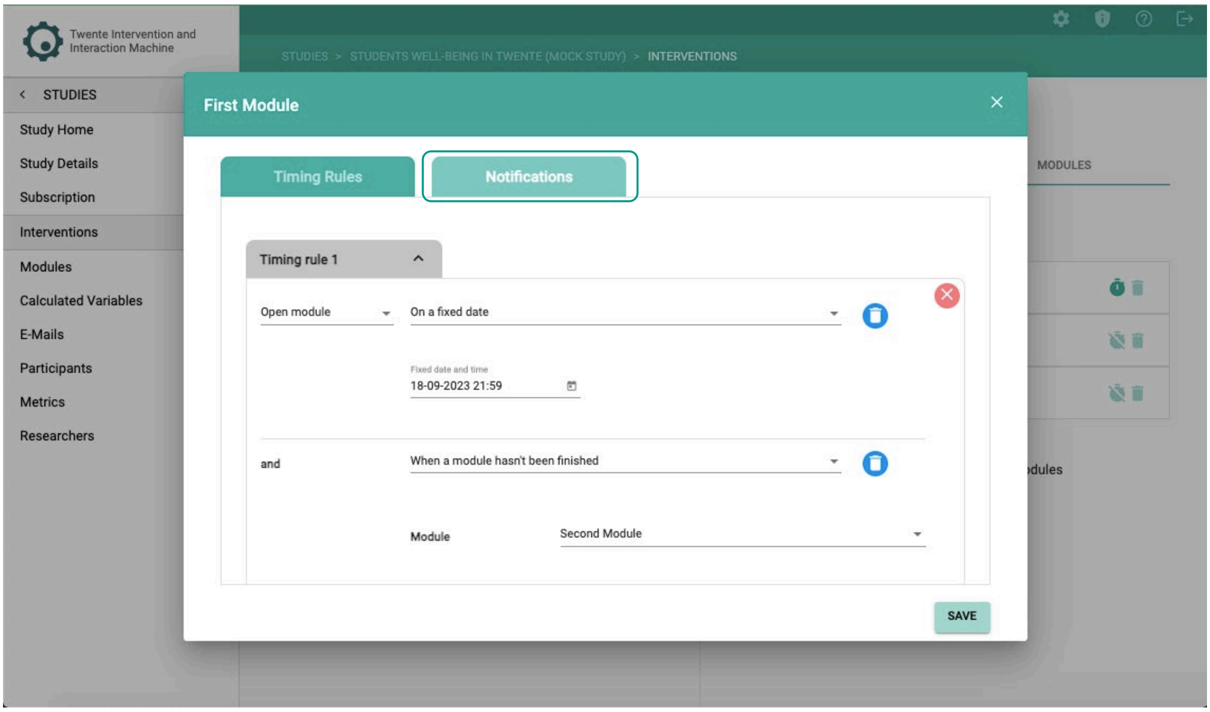
For a specific module, you can send **Notifications** to your participants. You can see the **Notifications** instructional video through the following link:

https://youtu.be/cWkduqyjUvA?si=VIQ2mf409y0V_8fW

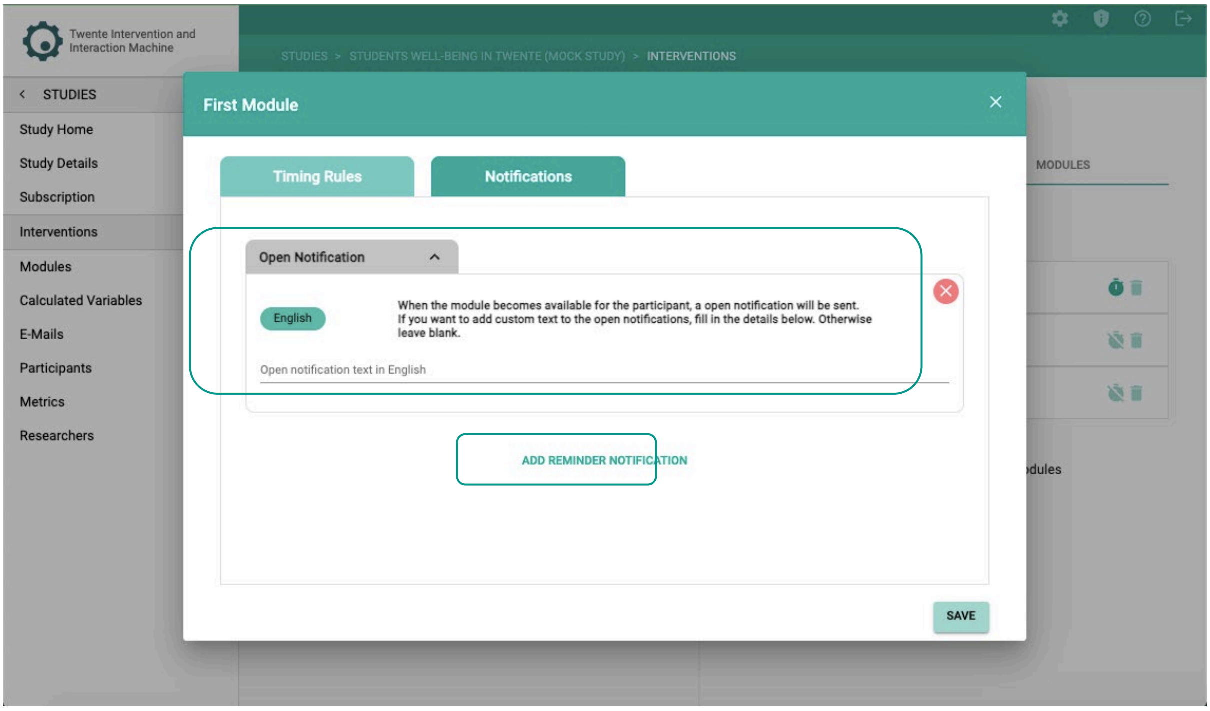
1. Click on the timer icon next to the Module that you want to add Timing Rules.



2. Click on the – NOTIFICATIONS – tab



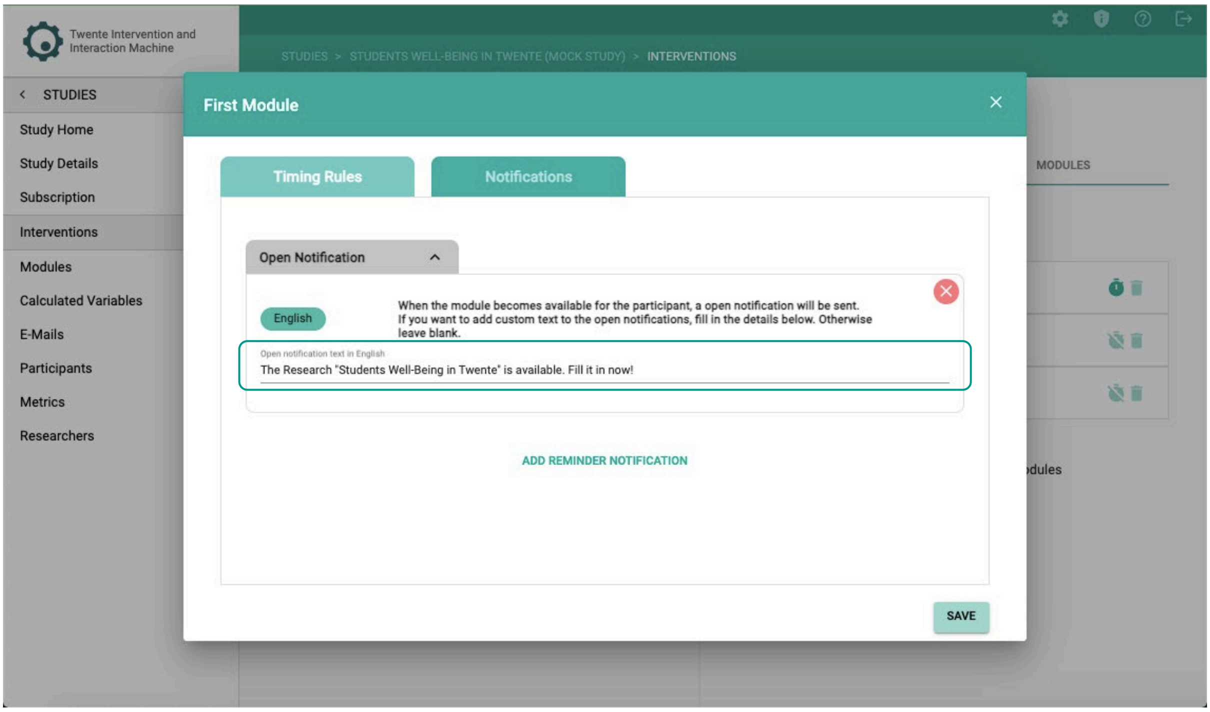
3. Select the type of notification that you would like to add.



Based on your added Timing Rules, you will see – OPEN NOTIFICATION – which sends a notification to the participant when the module is open, – CLOSE NOTIFICATION – (only enabled when timing rule is based on a time and date) which sends a notification to the participant when the module is closed, and – REMINDER NOTIFICATION – which sends a notification to remind participants to fill in the module.

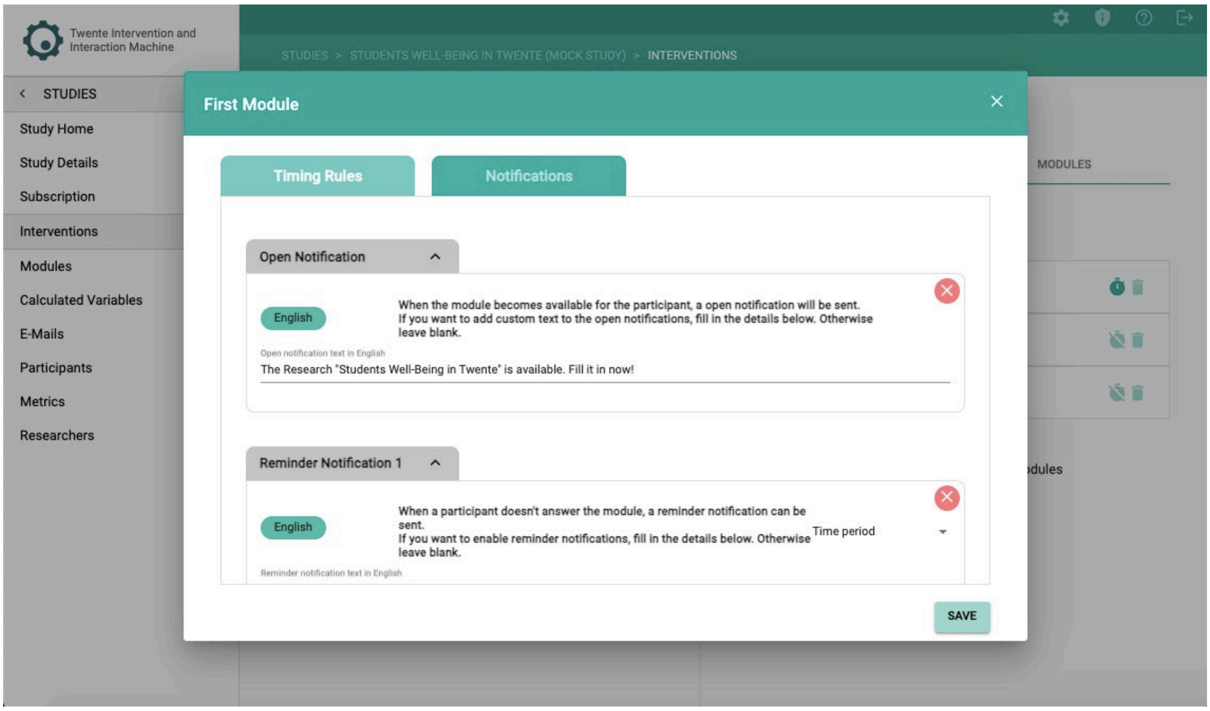
If you would like to delete the Open Notification and Close Notification, you need to remove the timing rule first.

4. Enter the notification text of your choosing.

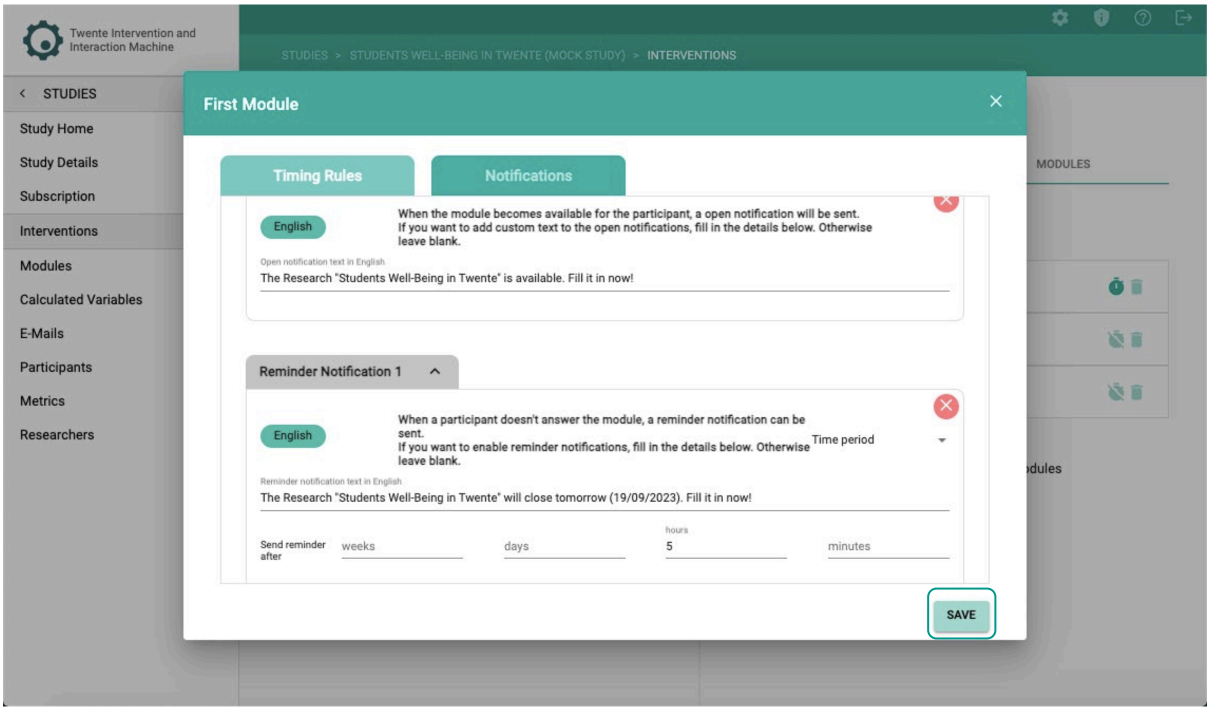


For Close Notification and Reminder Notification, set the time of your preference.

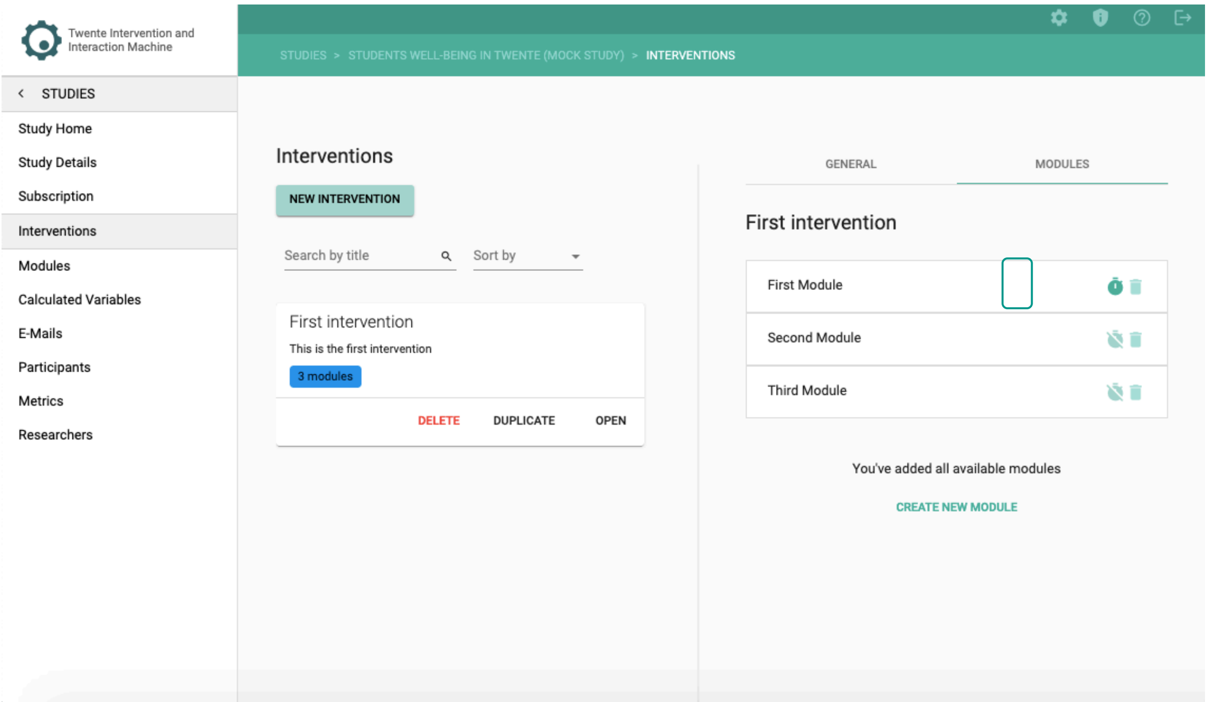
5. Repeat steps 3 and 4 for every module you want to add.



6. Click on – SAVE –.



The Notification is now added:



CREATING ITEMS

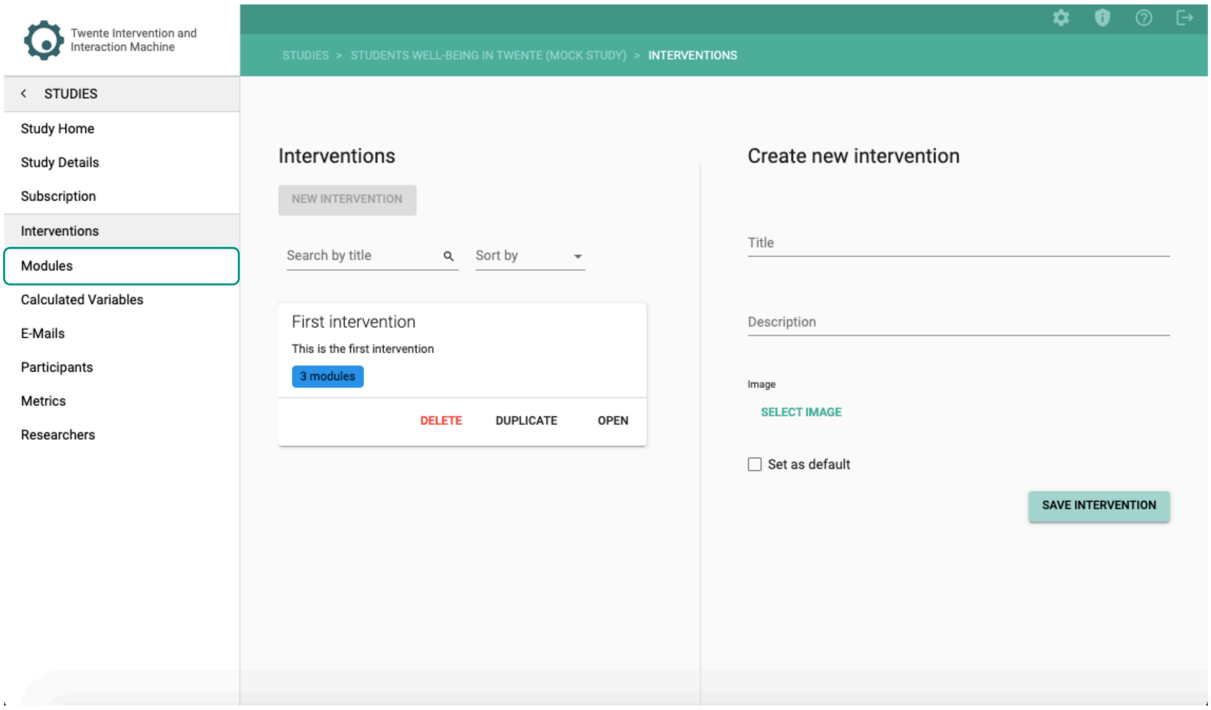
TIIM is capable of creating 19 different survey items to meet the needs of your study and allow you to collect data in the most suitable and precise manner. The items are designed with utmost flexibility, allowing you to tailor them precisely to your desired outcomes.
With a mobile-friendly design, respondents can conveniently participate in surveys from their smartphones, ensuring maximum accessibility and engagement.

You can see the **Creating Items** instructional video through the following link:

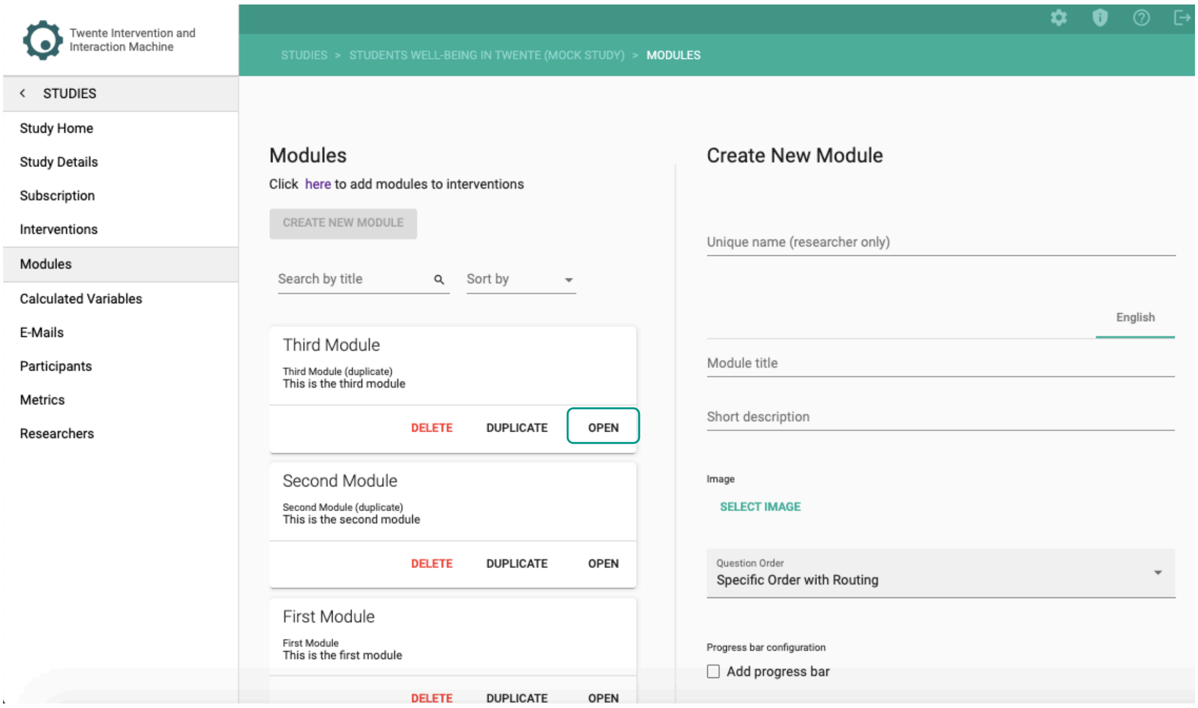
https://youtu.be/mcjJJ6lwRE?si=FvIGOLRB9INBBYpU

Items can only be created inside modules. To create an item, follow these steps:

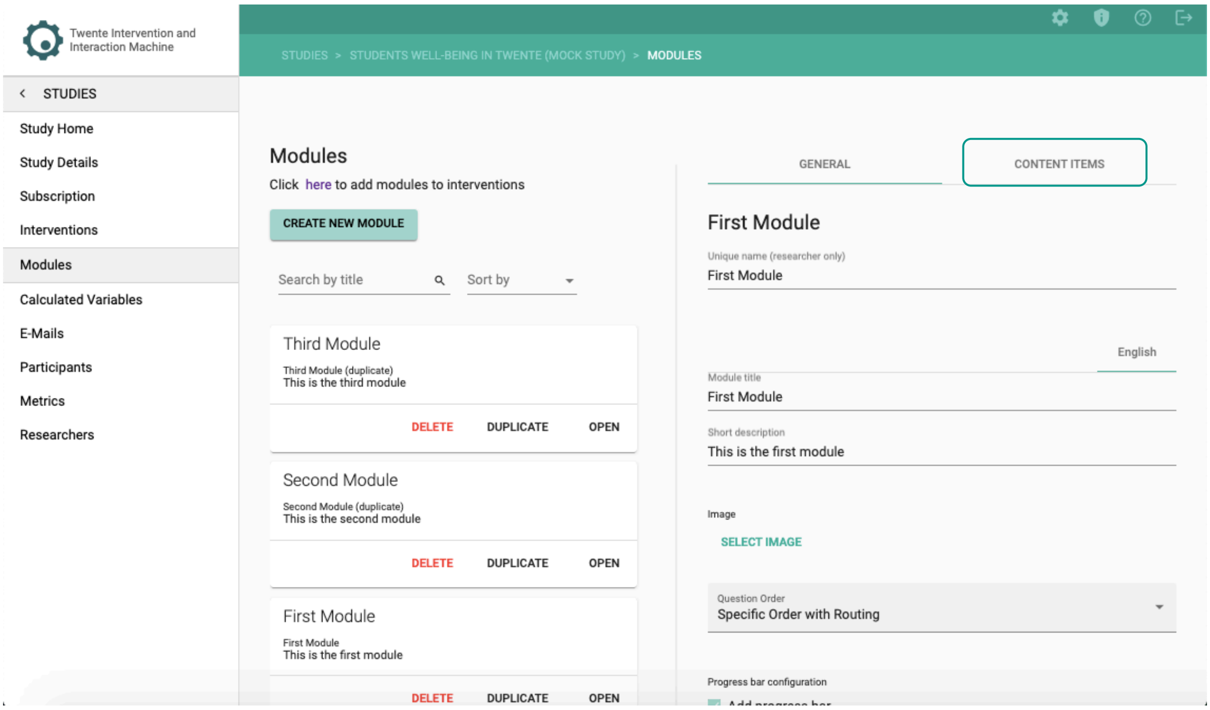
1. On the sidebar, click on the – MODULES – page.



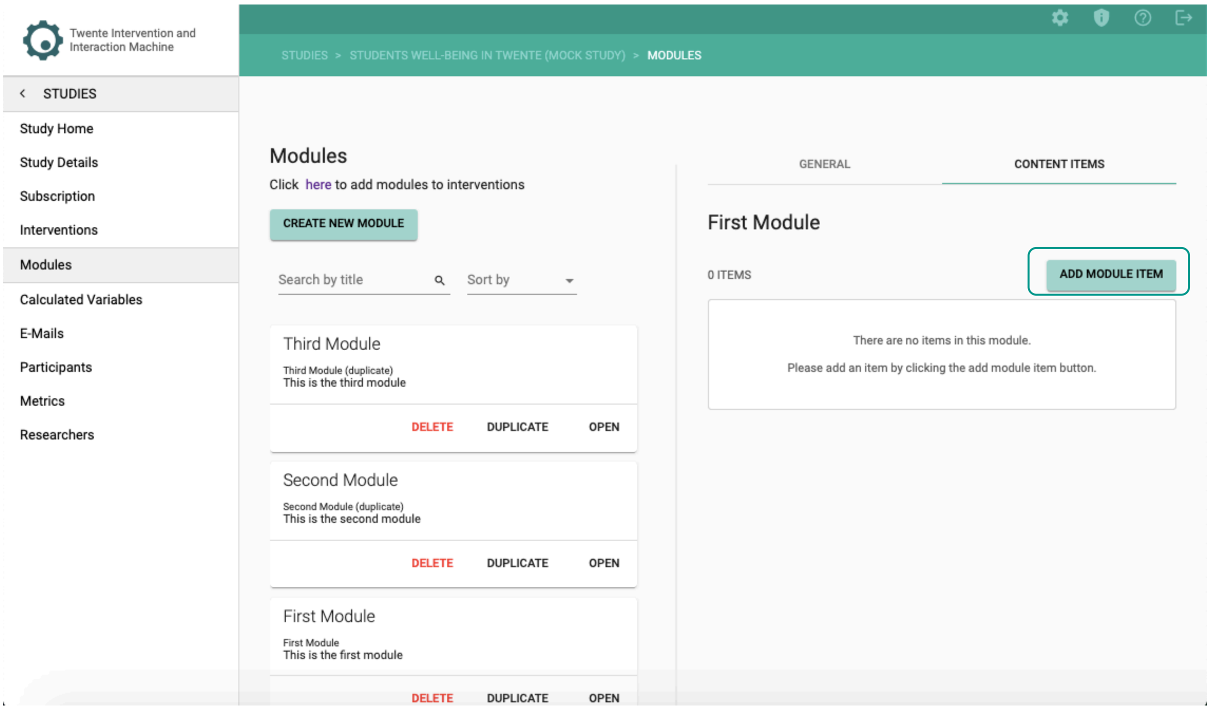
2. Within the module card, click on – OPEN –.



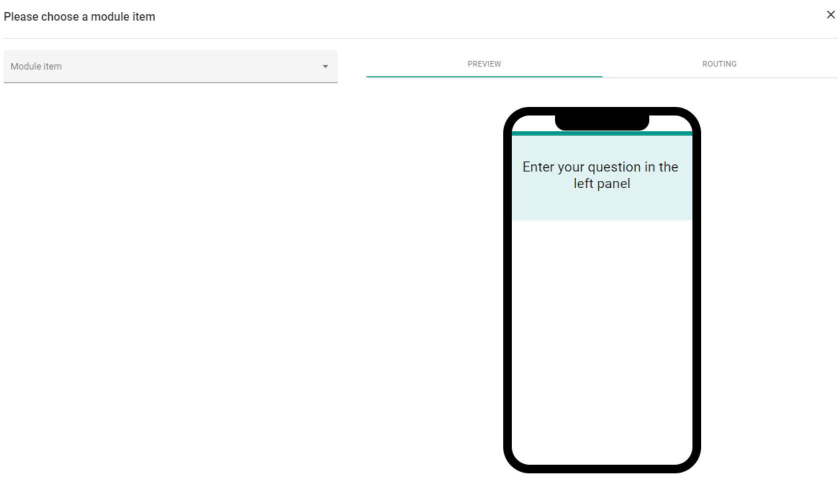
3. On the right-side panel, click on – CONTENT ITEMS –.



4. Click on – ADD MODULE ITEM –.

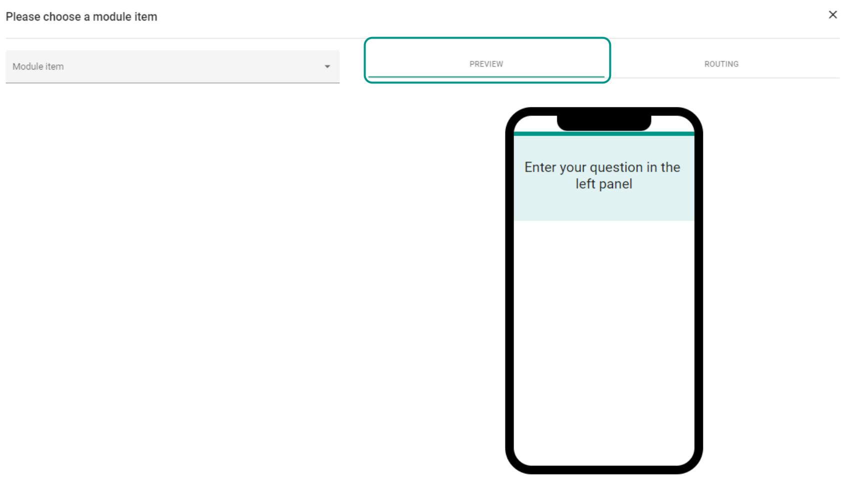


A new page will open:



PREVIEW

The Preview tab allows you to visualize how the item will be displayed to participants on their mobile devices.



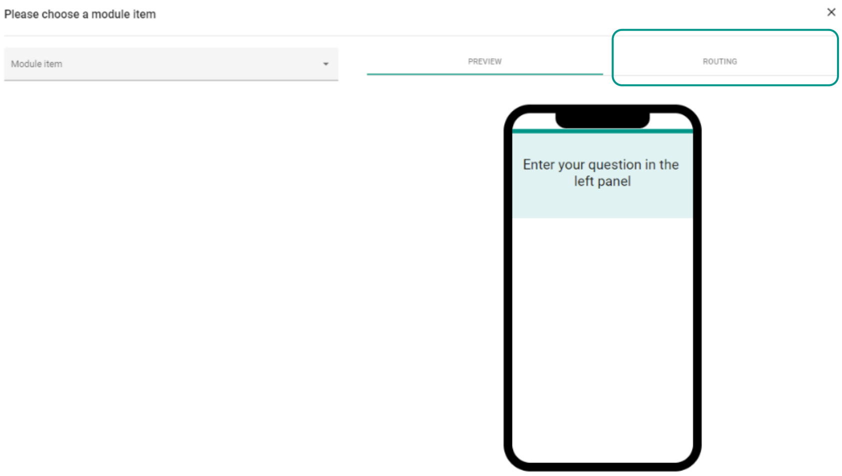
ROUTING (OPTIONAL)

The **Routing** tab allows you to define the routing rules for the survey item. This means that based on the participant's answer, the participant is directed to a specific question with the same module.

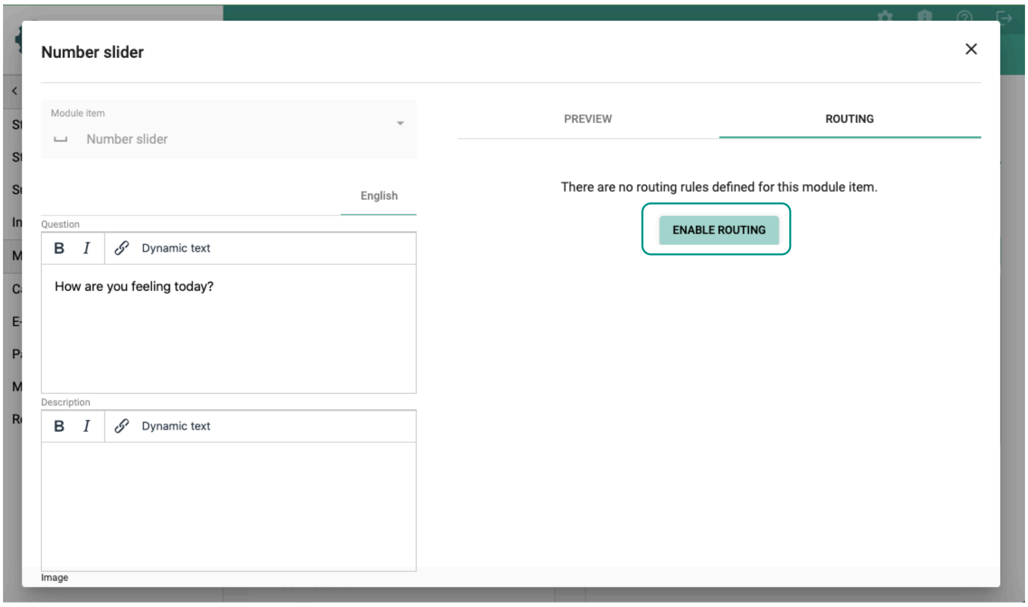
You can see the **Routing** instructional video through the following link:

https://youtu.be/oZ6HeoBFT1s?si=WGM4Han6m67Mm3Vl

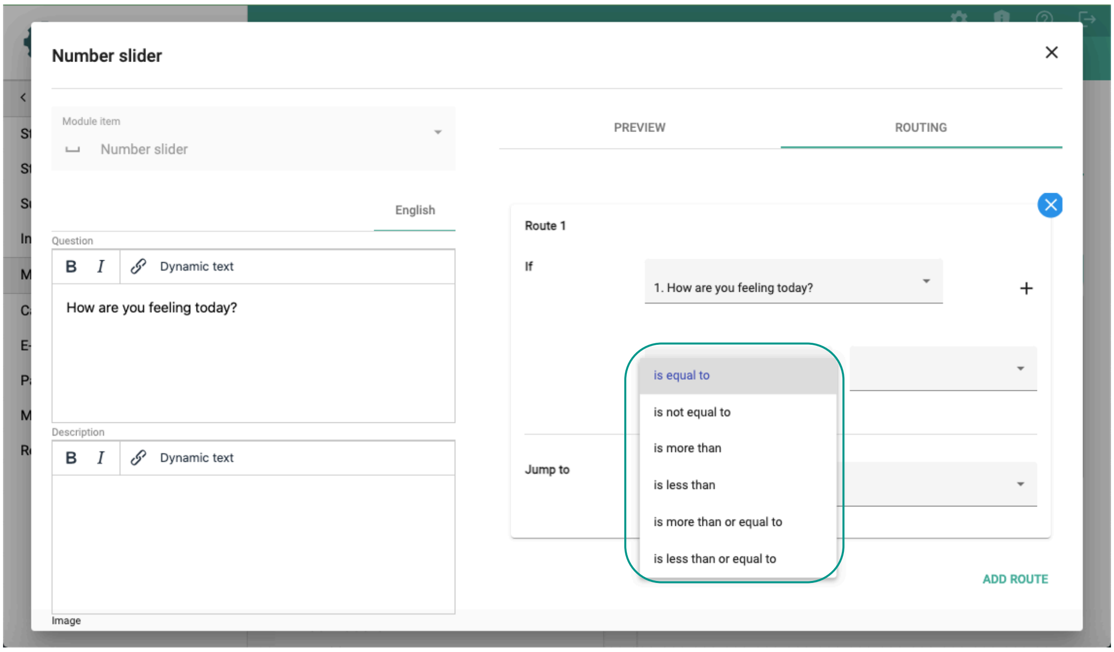
1. After creating different numerical items within a module, open one item.
2. In the preview screen, click – ROUTING – on the right side.



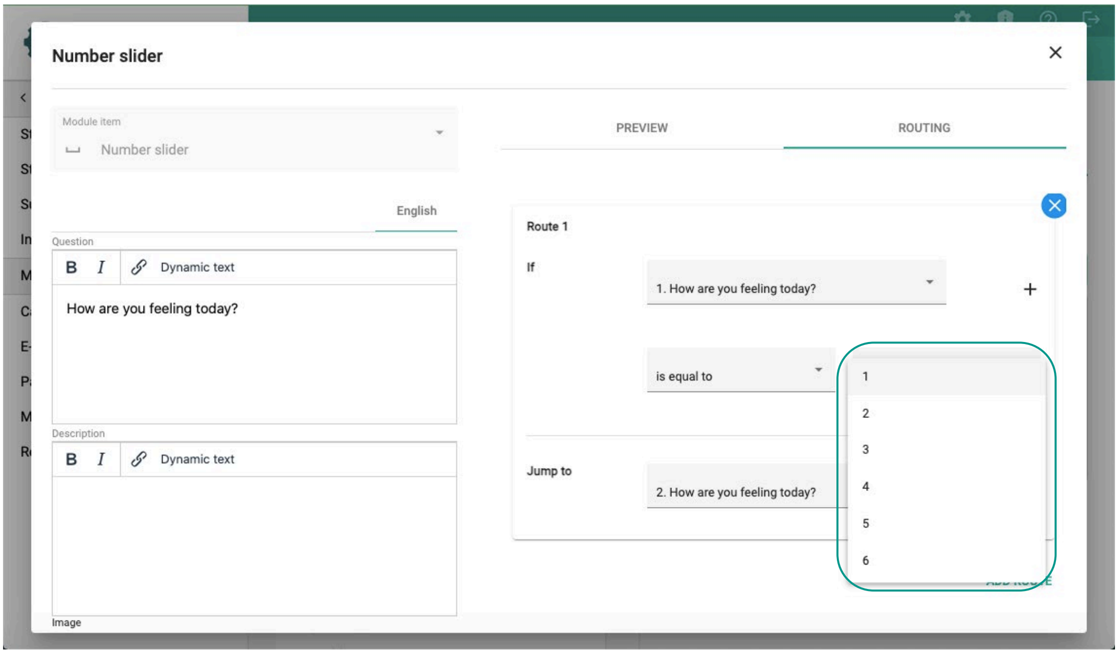
3. Click on – ENABLE ROUTING –.



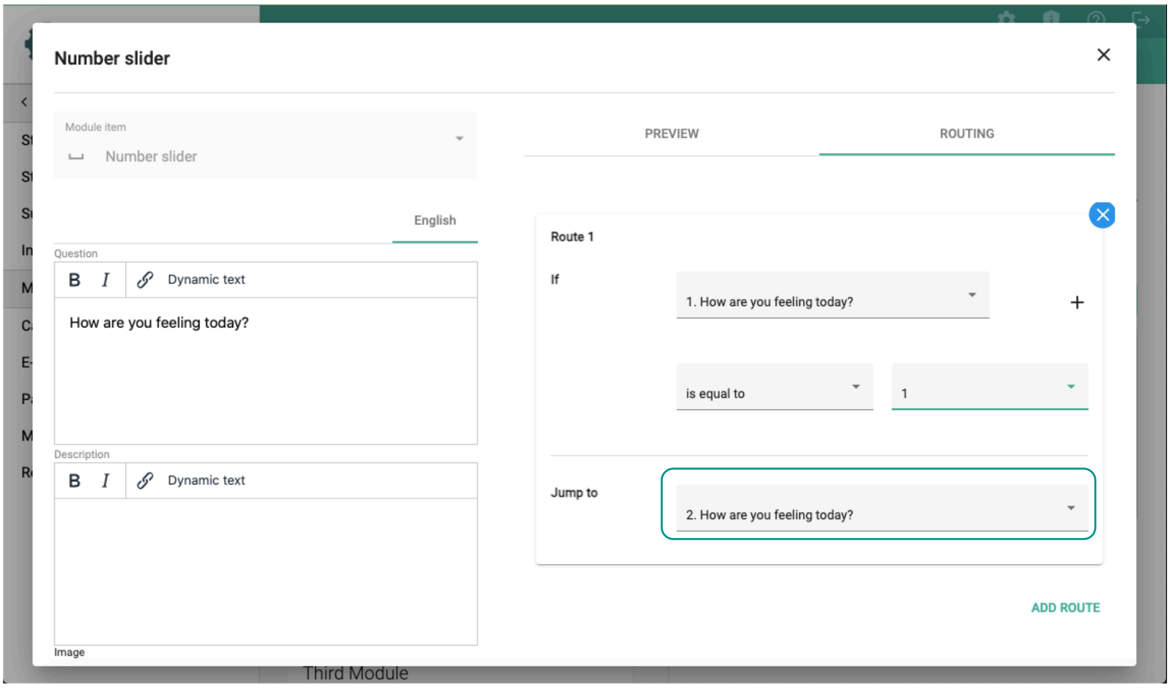
4. Select the item’s condition when the participant gives x answer within the item.
   - The options are – is equal to –, – is not equal to –, – is more than –, – is less than –, – is more than or equal to –, or – is less than or equal to –.



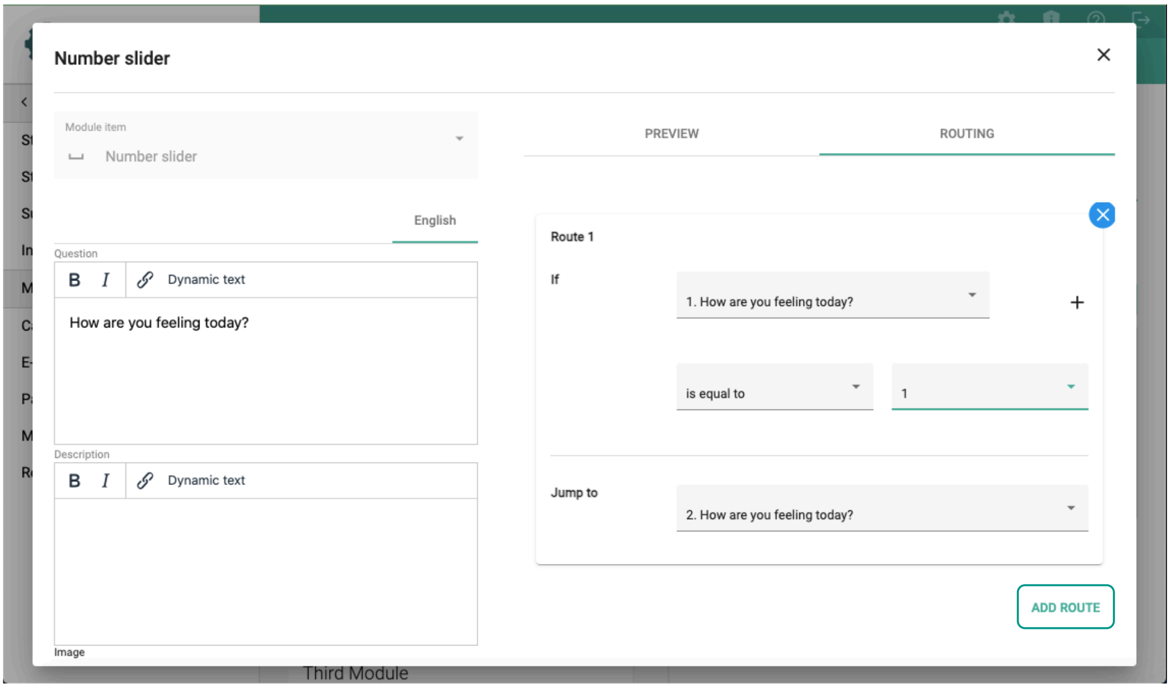
- And the participant's answer is shown as a value or name of the Likert scale.



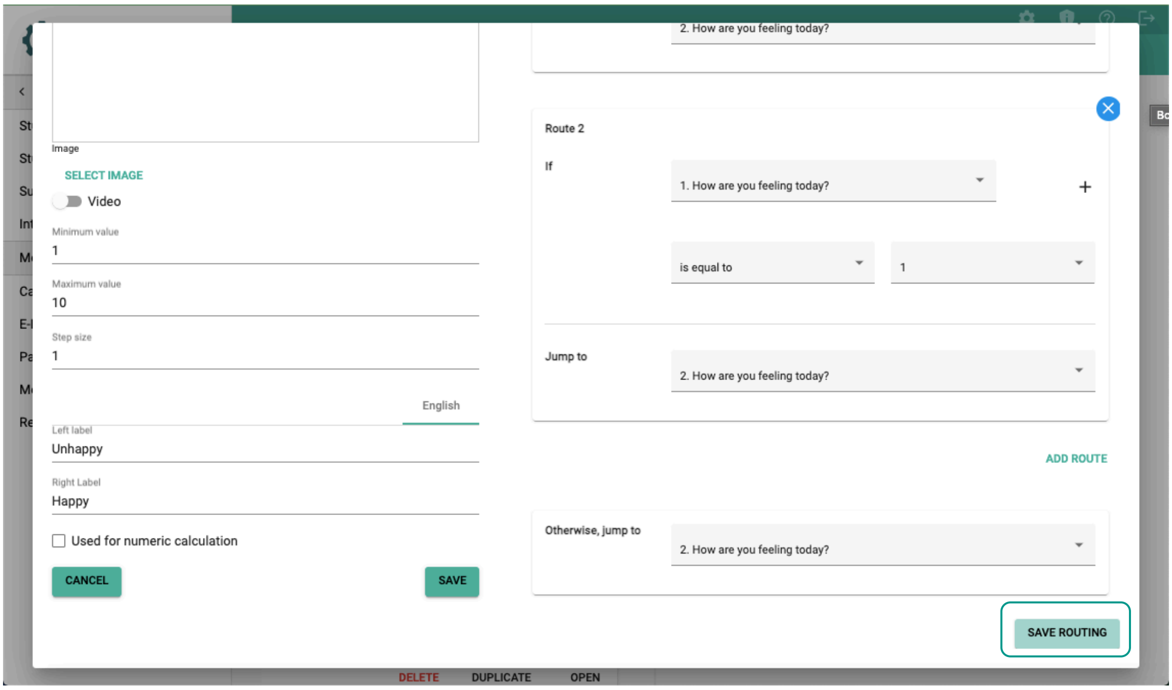
5. Select to which item the participant would jump if the participant gives x answer within the item.



6. If you want to add more than one route, click on – ADD ROUTE –.



7. After you finish adding your routes, click on – SAVE ROUTING –.



Routing within a module is only possible if you have 3 or more numerical type items with the exception of the second to last item or last item.

ITEM TYPES

On the left-side of the page, you will be able to create your survey items. To start creating items, select the type of survey item you want to create in the drop-down menu. There are 19 different options for survey items which are categorized into 3 main types. You will find the instructions for each one of them in this manual.

Text Answer Items:

1. Single-line input
2. Multi-line input
3. Dropdown
4. Yes/No
5. Multiple choice

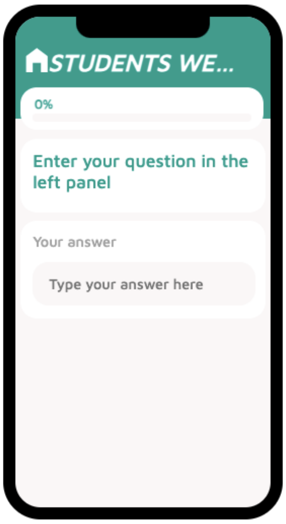
Numerical Answer Items:

1. Number input
2. Number slider
3. Number dropdown
4. Number choice

Specialized Answer Items

1. Statement
2. Video/Audio
3. Likert scale
4. Camera image
5. Audio recording
6. Emotion quadrant
7. Orbits
8. Network
9. Specialized Drag and Drop
10. Graph

TEXT ANSWER ITEMS



1. SINGLE-LINE INPUT

A **Single-line Input** item allows the participant to answer a specific question by ***typing an answer*** in a field. This type of item is more appropriate for ***shorter*** answers.

Creating a Single-Line Input Item

1. Click on – ADD MODULE ITEM –.
2. Select Single-line input in the Module item drop-down menu.
3. In the Question field, insert your text.
   - Customizing your message: click on – DYNAMIC TEXT –.
   - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
   - Customizing your message: click on – DYNAMIC TEXT –.
   - Select the items you want to automatically be inserted in your message.

Adding an Image or Video (Optional)

5. Click on – SELECT IMAGE –.
   - Upload your image.
6. Switch Video ON.
   - Insert video URL (only YouTube and Vimeo are accepted).

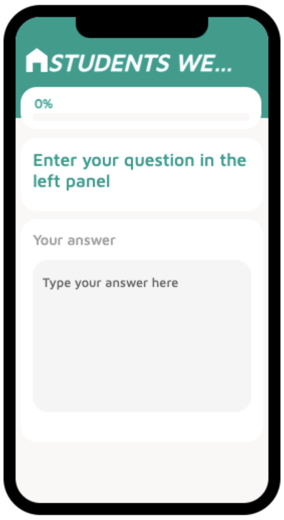
Answer Limit

7. You can select the length of possible answers by determining the maximum number of characters.
8. Click on – MAXIMUM NUMBER OF CHARACTERS –.
   - Select or type the desired limit of characters.

Finalizing Item

9. Click on – SAVE –.
   - You will be directed to the Modules dashboard.

2. MULTI-LINE INPUT



A **Multi-line Input** item allows the participant to answer a specific question by ***typing an answer*** in a field. This type of item is more appropriate for ***longer*** answers, and they allow the participant to view their inputs in multiple lines on the screen.

Creating a Multi-Line Input Item

1. Click on – ADD MODULE ITEM –.
2. Select Multi-line input in the Module item drop-down menu.
3. In the Question field, insert your text.
   - Customizing your message: click on – DYNAMIC TEXT –.
   - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
   - Customizing your message: click on – DYNAMIC TEXT –.
   - Select the items you want to automatically be inserted in your message.

Adding an Image or Video (Optional)

5. Click on Select image.
   - Upload your image.
6. Switch Video ON.
   - Insert video URL (only YouTube and Vimeo are accepted).

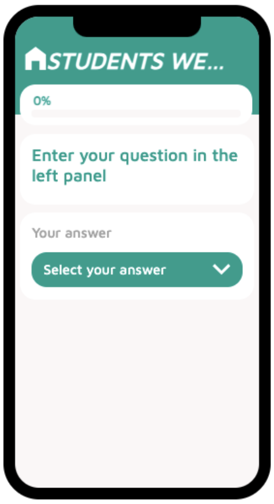
Answer Limit

7. You can select the length of possible answers by determining the maximum number of characters.
8. Click on – MAXIMUM NUMBER OF CHARACTERS –.
   - Select or type the desired limit of characters.

Finalizing Item

9. Click on – SAVE –.
   - You will be directed to the Modules dashboard.

3. DROPDOWN



A **Dropdown** item allows the participant to answer a specific question by ***selecting a string (text) value*** from a dropdown menu. The answer options can be determined by the researcher, and they can be randomly organized.

Creating a Dropdown Item

1. Click on – ADD MODULE ITEM –.
2. Select dropdown in the Module item drop-down menu.
3. In the Question field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.

Adding an Image or Video (Optional)

5. Click on – SELECT IMAGE –
    - Upload your image.
6. Switch Video ON.
    - Insert video URL (only YouTube and Vimeo are accepted).

Determining String (Text) Options

7. Click on THE – CHOICES – box.
8. Add each answer option in a separate line.

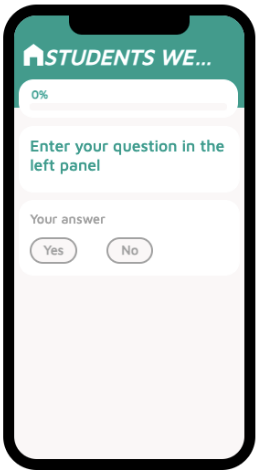
Randomizing Answer Options

9. If you want the **TIIM** app to randomize the options order for each participant, you can select the *Randomized choices* checkbox.

Finalizing Item

10. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

4. YES/NO



A **Yes/No** item allows the participant to answer a specific question by ***choosing between two possible answers***. The values on the button labels can be determined by the researcher.

Creating a Yes/No Item

1. Click on – ADD MODULE ITEM –.
2. Select Yes/No in the Module item drop-down menu.
3. In the Question field, insert your text.
   - Customizing your message: click on – DYNAMIC TEXT –.
   - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
   - Customizing your message: click on – DYNAMIC TEXT –.
   - Select the items you want to automatically be inserted in your message.

Adding an Image or Video (Optional)

5. Click on – SELECT IMAGE –.
   - Upload your image.
6. Switch Video ON.
   - Insert video URL (only YouTube and Vimeo are accepted).

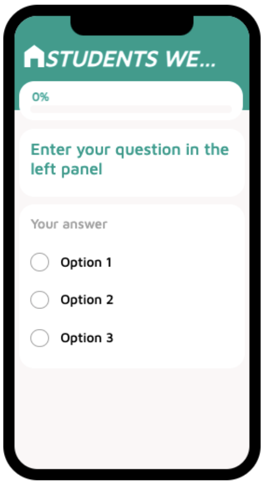
Determining Button Labels

7. Determine Button Labels.
   - Click on the Left/Right Labels field and add text.

Finalizing Item

8. Click on – SAVE –.
   - You will be directed to the Modules dashboard.

5. MULTIPLE CHOICE



A **Multiple-Choice** item allows the participant to answer a specific question by ***selecting one or more string (text) values*** from a screen menu. The answer options can be determined by the researcher, and they can be randomly organized.

Creating a Multiple-Choice Item

1. Click on – ADD MODULE ITEM –.
2. Select Multiple choice in the Module item drop-down menu.
3. In the Question field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.

Adding an Image or Video (Optional)

5. Click on – SELECT IMAGE –.
    - Upload your image.
6. Switch Video ON.
    - Insert video URL (only YouTube and Vimeo are accepted).

Determining String (Text) Options

7. Click on the – CHOICES – box.
8. Add each answer option in a separate line.
9. Select or type the minimum number of possible answers.
10. Select or type the maximum number of possible answers.
11. If you want participants to add other possible answers, select – ALLOW OTHER OPTIONS –.

Randomizing Answer Options

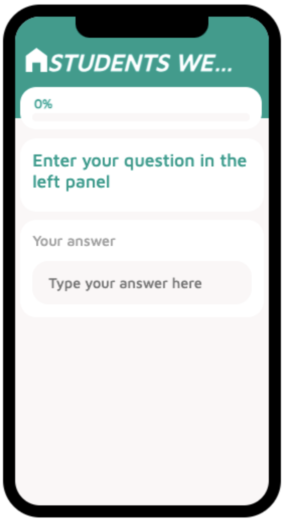
12. If you want the **TIIM** app to randomize the options order for each participant, you can select the *Randomized choices* checkbox.

Finalizing Item

13. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

NUMERICAL ANSWER ITEMS

1. NUMBER INPUT



A **Number Input** item allows the participant to answer a specific question by ***writing down*** a value in the answer field. The minimum and maximum valid values in the numerical range can be determined by the researcher. These numeric values can be later used to compose other survey items or calculate other variables within the **TIIM** app.

Creating a Number Input Item

1. Click on – ADD MODULE ITEM –.
2. Select Number Input in the Module item drop-down menu.
3. In the Question field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.

Adding an Image or Video (Optional)

5. Click on – SELECT IMAGE –.
    - Upload your image.
6. Switch Video ON.
    - Insert video URL (only YouTube and Vimeo are accepted).

Determining Numerical Range

7. Click on the – MINIMUM – value field.
8. Select or type the minimum value in the range.
9. Click on the – MAXIMUM – value field.
10. Select or type the maximum value in the range.

Using for Numeric Calculation

If you want the **TIIM** app to consider the input values for numeric calculations (Calculated Variables) within the app, select the checkbox next to – USED FOR NUMERIC CALCULATION–.

- You need to create a unique name for a numeric calculation.
- To finalize the Calculated Variable, see Calculated Variables section.

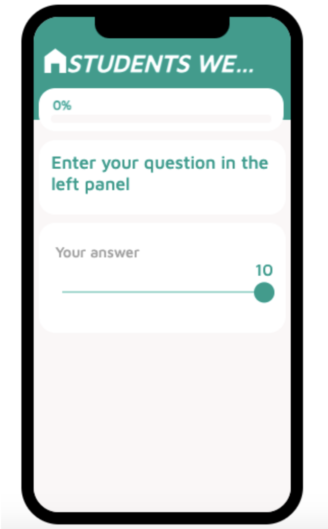
Make sure the name is recognizable for you. The name only allows letters, numbers and underscores and cannot be repeated in the same study (unique to each study).

Finalizing Item

1. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

2. NUMBER SLIDER

A **Number Slider** item allows the participant to answer a specific question by ***sliding a pointer*** to a specific value on a line. The minimum and maximum valid values in the numerical range can be determined by the researcher. These numeric values can be later used to compose other survey items or calculate other variables within the **TIIM** app.



Creating a Number Slider Item

1. Click on – ADD MODULE ITEM –.
2. Select the Number slider in the Module item drop-down menu.
3. In the Question field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.

Adding an Image or Video (Optional)

1. Click on – SELECT IMAGE –.
    - Upload your image.

2. Switch Video ON.
    - Insert video URL (only YouTube and Vimeo are accepted).

Determining Numerical Range

1. Click on the – MINIMUM – value field.
    - Select or type the minimum value in the range.
2. Click on the – MAXIMUM – value field.
    - Select or type the maximum value in the range.
3. Click on – STEP – size.
    - Select or type the step size (interval between values).
4. Button Labels
    - Click on the Left/Right Labels field and add text.

Using for Numeric Calculation

If you want the **TIIM** app to consider the input values for numeric calculations within the app, select the checkbox next to – USED FOR NUMERIC CALCULATION –.

- You need to create a unique name for a numeric calculation.
- To finalize the Calculated Variable, see Calculated Variables section.

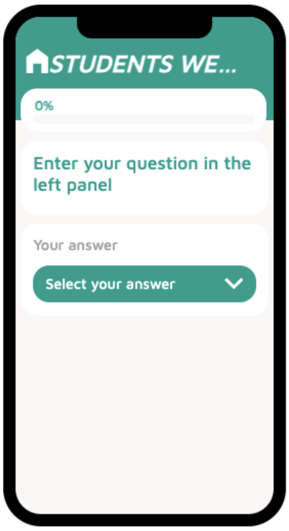
> Make sure the name is recognizable for you. The name only allows letters, numbers and underscores and cannot be repeated in the same study (unique to each study).

Finalizing Item

1. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

3. NUMBER DROPDOWN

A **Number Dropdown** item allows the participant to answer a specific question by ***selecting a numerical value*** from a dropdown menu. The minimum and maximum valid values in the numerical range can be determined by the researcher. These numeric values can be later used to compose other survey items or calculate other variables within the **TIIM** app.



Creating a Number Dropdown Item

1. Click on – ADD MODULE ITEM –.
2. Select Number dropdown in the Module item drop-down menu.
3. In the Question field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.

Adding an Image or Video (Optional)

1. Click on – SELECT IMAGE –.
    - Upload your image.
2. Switch Video ON.
    - Insert video URL (only YouTube and Vimeo are accepted).

Determining Numerical Range

1. Click on – MINIMUM – value field.
    - Select or type the minimum value in the range.
2. Click on – MAXIMUM – value field.
    - Select or type the maximum value in the range.
3. Click on – STEP – size.
    - Select or type the step size (interval between values).

Using for Numerical Calculation

If you want the **TIIM** app to consider the input values for numeric calculations within the app, select the checkbox next to – USED FOR NUMERIC CALCULATION –.

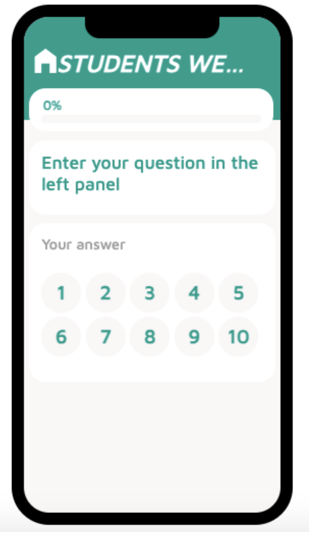
- You need to create a unique name for a numeric calculation.
- To finalize the Calculated Variable, see Calculated Variables section.

Make sure the name is recognizable for you. The name only allows letters, numbers and underscores and cannot be repeated in the same study (unique to each study).

Finalizing Item

1. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

4. NUMBER CHOICE



A **Number Choice** item allows the participant to answer a specific question by ***selecting a numerical value*** on the screen. The minimum and maximum valid values in the numerical range can be determined by the researcher. These numeric values can be later used to create other survey items or calculate other variables within the **TIIM** app.

Creating a Number Choice Item

1. Click on – ADD MODULE ITEM –.
2. Select Number choice in the Module item drop-down menu.
3. In the Question field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.

Adding an Image or Video (Optional)

1. Click on – SELECT IMAGE –.
    - Upload your image.
2. Switch Video ON.
    - Insert video URL (only YouTube and Vimeo are accepted).

Determining Numerical Range

1. Click on – STEP – size.
    - Select or type the step size (interval between values).
2. Button Labels
    - Click on the Left/Right Labels field and add text.

Using for Numerical Calculation

If you want the **TIIM** app to consider the input values for numeric calculations within the app, select the checkbox next to – USED FOR NUMERIC CALCULATION –.

- You need to create a unique name for a numeric calculation.
- To finalize the Calculated Variable, see Calculated Variables section.

Make sure the name is recognizable for you. The name only allows letters, numbers and underscores and cannot be repeated in the same study (unique to each study).

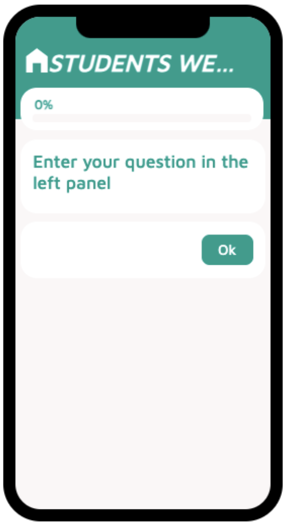
Finalizing Item

1. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

SPECIALIZED ANSWER ITEMS

1. STATEMENT

A **Statement** item is a written message that the researcher may want to communicate to participants at any time during a survey. It may be a greeting, an instruction or any other relevant information that do not require an immediate action or response from the participant.



The **TIIM** app allows you to share the following items:

- **Text:** our message will appear as a survey item in the app. The Dynamic Text feature allows you to customize your message with participants details, such as name or email. You can also add images or videos to your message.
- **Image:** for optimal results in mobile devices, images should have a resolution of at least 1500 pixels.
- **Video:** video contents must be hosted either in YouTube or Vimeo.

Participants cannot react to **Statement** items. However, to proceed with the survey, they must acknowledge their viewing by clicking a customizable button.

Creating a Statement Item

1. Click on – ADD MODULE ITEM –.
2. Select Statement in the Module item drop-down menu.
3. In the Statement field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.

Adding an Image or Video (Optional)

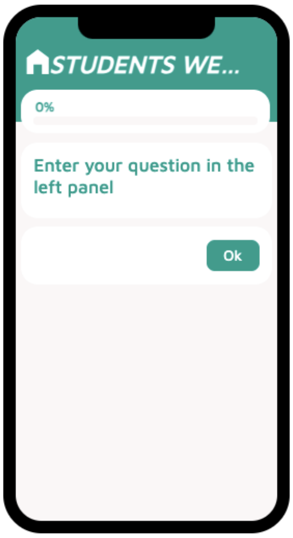
1. Click on – SELECT IMAGE –.
    - Upload your image.
2. Switch Video ON (optional)
    - Insert video URL (only YouTube and Vimeo are accepted).
3. Button Label (optional)
    - Click on the Button Label field and add text.

Finalizing Item

1. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

2. VIDEO/AUDIO

A **Video/Audio** item is an audio and/or visual message that the researcher may want to communicate to participants at any time during a survey. The main difference with the Statement item, is that in Video/Audio you can upload your own file and not a URL from a streaming service. The **TIIM** app allows you to share the following items:



- Text: our message will appear as a survey item in the app. The Dynamic Text feature allows you to customize your message with participants details, such as name or email. You can also add images or videos to your message.
- Video/Audio: media file size should not be larger than 3mb.

Participants cannot react to **Video/Audio** items. However, to proceed with the survey, they must acknowledge their viewing by clicking a button. The default label for the button is **OK**, but you may customize it.

You can see the **Video/Audio** item instructional video through the following link:

https://youtu.be/pDm6WTUsRYU?si=fXArDtQfa8kn3M9U

Creating a Video/Audio Item

1. Click on – ADD MODULE ITEM –.
2. Select Video/Audio in the Module item drop-down menu.
3. In the statement field, insert your text.
   - Customizing your message: click on – DYNAMIC TEXT –.
   - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
   - Customizing your message: click on – DYNAMIC TEXT –.
   - Select the items you want to automatically be inserted in your message.

Select Video or Audio

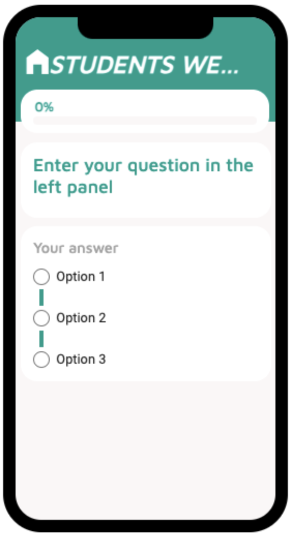
1. Click on – SELECT VIDEO OR AUDIO –.
   - Upload your file.
   - Files larger than 3mb are tot accepted by the system.
2. Button Label (optional).

- Click on the Button Label field and add text.

Finalizing Item

1. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

3. LIKERT SCALE



A **Likert Scale** item allows the participant to answer a specific question by ***selecting string (text) values*** from within a range of options. They are a commonly used rating scale for measuring the degree of agreement or disagreement with a statement by offering a range of response options, typically from "strongly disagree" to "strongly agree. The answer options can be determined by the researcher, and they can be randomly organized. In this case, the randomization process is by inverting the poles of the agreeability scale.

Creating a Likert Scale Item

1. Click on – ADD MODULE ITEM –.
2. Select Multiple choice in the Module item drop-down menu.
3. In the Question field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.

Adding an Image or Video (Optional)

1. Click on – SELECT IMAGE –.
    - Upload your image.
2. Switch Video ON.
    - Insert video URL (only YouTube and Vimeo are accepted).

Determining Scale Options

1. Click on the – CHOICES – box.
2. Add each answer option in a separate line.
3. Remember to add them in the appropriate order within the range.
4. If you want participants to add other possible answers, select *Allow other Option.*

Randomizing Answer Options

If you want the **TIIM** app to randomize the options order for each participant, you can select the *Randomized choices* checkbox.

Using for Numeric Calculation

If you want the **TIIM** app to consider the input values for numeric calculations within the app, select the checkbox next to – USED FOR NUMERIC CALCULATION –.

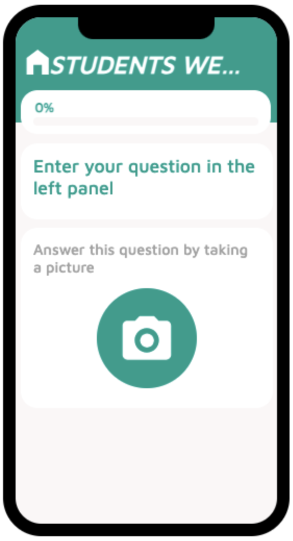
- You need to create a unique name for a numeric calculation.
- To finalize the Calculated Variable, see Calculated Variables Section.

> Make sure the name is recognizable for you. The name only allows letters, numbers and underscores and cannot be repeated in the same study (unique to each study).

Finalizing Item

1. Click on – SAVE –.
   - You will be directed to the Modules dashboard.

4. CAMERA IMAGE



A **Camera Image** item allows participants to ***take a picture or upload an image from the camera from their mobile devices***, upon request. You may also add an image to the survey item, if necessary.

You can see the **Camera Image** item instructional video through the following link:

https://youtu.be/3G7H9jnrdE8?si=J484k3xmdNKMG9pC

Creating a Camera Image Item

1. Click on – ADD MODULE ITEM –.
2. Select Camera image in the Module item drop-down menu.

3. In the Question field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.

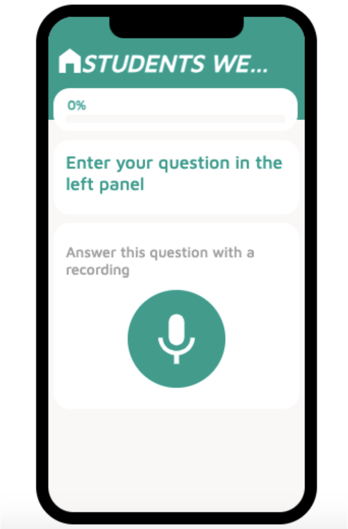
Adding an Image

1. Click on – SELECT IMAGE –.
    - Upload your image.

Finalizing Item

1. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

5. AUDIO RECORDING



An **Audio Recording** item allows participants to ***send an audio recording*** upon request. You may also add an image to the survey item, if necessary.

You can see the **Audio Recording** item instructional video through the following link:

https://youtu.be/HvgZNOma4kM?si=rbA52vlG8r_ZvQBy

Creating an Audio Recording Item

1. Click on – ADD MODULE ITEM –.
2. Select audio recording in the Module item drop-down menu.
3. In the Question field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.

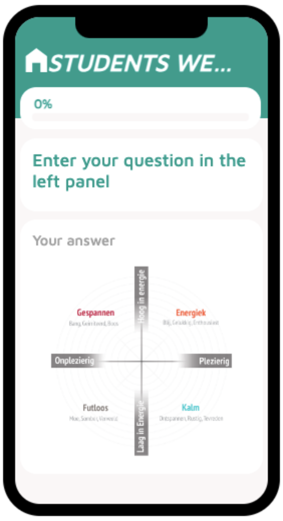
Adding an Image or Video (Optional)

1. Click on – SELECT IMAGE –.
   - Upload your image.
2. Switch Video ON.
   - Insert video URL (only YouTube and Vimeo are accepted).

Finalizing Item

1. Click on – SAVE –.
   - You will be directed to the Modules dashboard.

6. EMOTION QUADRANT



The **Emotion Quadrant** is a visual representation that categorizes emotions based on two dimensions, typically valence (positive/negative) and arousal (low/high), allowing respondents to indicate their emotional state by selecting a point within the quadrant that corresponds to their current emotional experience. Participants are requested to ***drag a pointer to a desired location within the quadrant***, and the obtained values are calculated based on the pointer's coordinate. The image used in the Emotions quadrant is selected by the researcher.

You can see the **Emotion Quadrant** item instructional video through the following link:

https://youtu.be/li83LrMoUZs?si=PI5mbK1tu3l7oNlQ

Creating an Emotion Quadrant Item

1. Click on – ADD MODULE ITEM –.
2. Select – EMOTION QUADRANT –in the Module item drop-down menu.
3. In the Statement field, insert your text.
   - Customizing your message: click on – DYNAMIC TEXT –.
   - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
   - Customizing your message: click on – DYNAMIC TEXT –.
   - Select the items you want to automatically be inserted in your message.

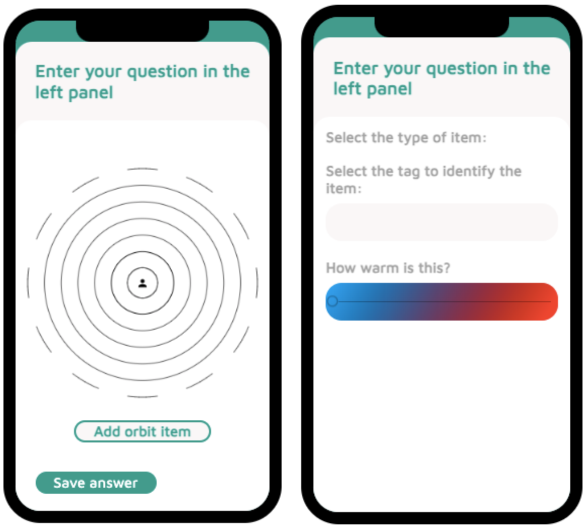
Adding an Image

1. Click on – SELECT IMAGE –.
    - Upload your image. The image must be squared (1:1 ratio) and the resolution may not exceed 2000 pixels.

Finalizing Item

1. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

7. ORBITS



In an Orbits item, participants are requested to ***select an item and place it on a concentric circle***. The orbits matrix collects three different values: the relative distance of the object to the center, the tag used to identify the item, the value the participant attributed as perceived "warmth" in the sliding bar, and the orbit image.

In Orbits, you may add up to 10 items, each identified by a different icon.

Creating an Orbits Item

1. Click on – ADD MODULE ITEM –.
2. Select – ORBITS – in the Module item drop-down menu.
3. In the Statement field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
5. Select or type number of desired orbits (up to 10 concentric circles).

Customizing Items

You may customize and rename items to suit your survey question. You cannot add or modify icons.

1. Type in the name of your item in – NAME OF THE ITEM –.
2. Select an icon for the item.
3. Click on – ADD ITEM –.

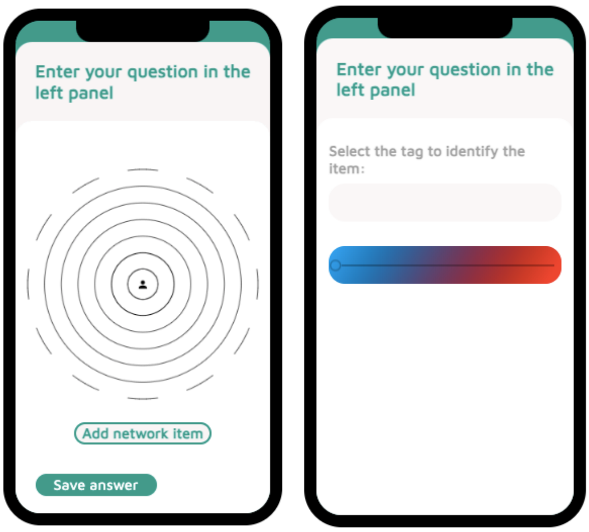
Reuse Orbit Items

As an additional resource, the **TIIM** app allows you to save the item set you have created to be used in other survey items in your study.

Finalizing Item

1. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

8. NETWORK



The **Network** item asks participants to **add a label identifying the item, indicate the warmth of the item and then place it on one of the lines within the circle image as a response.** The Network matrix collects two different values: the relative distance of the object to the center, the value the participant attributed as perceived "warmth" in the sliding bar, and the network image. In a Network item, participants choose the icons and their corresponding labels. The number of items may be limited by the researcher (max.10).

You can see the **Network** item instructional video through the following link:

https://youtu.be/li83LrMoUZs?si=PI5mbK1tu3l7oNlQ

Creating a Network Item

1. Click on – ADD MODULE ITEM –.

2. Select – NETWORK – in the Module item drop-down menu.
3. In the Statement field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
5. Add the question to be used in the ***warm slider bar***.
6. Name the left side label (cold/blue side).
7. Name the right-side label (hot/red side).
8. Select or type number of desired orbits (up to 10 concentric circles).

Reuse Orbit Items

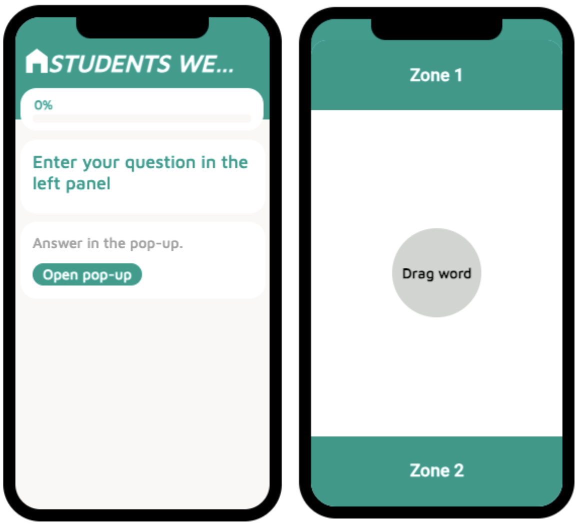
As an additional resource, the **TIIM** app allows you to save the item set you have created to be used in other survey items in your study.

Finalizing Item

1. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

9. SPECIALIZED DRAG AND DROP

The **Specialized Drag and Drop** item participants are asked to categorize an item by dragging and dropping it into a group or category. This allows the participant to interact with the survey by manipulating the items or option provided. Only one answer is considered valid.



You can see the **Specialized Drag and Drop** item instructional video through the following link:

https://youtu.be/S4ov780k3no?si=u_FrmAIS9-qlkv1N

Creating a Specialized Drag and Drop Item

1. Click on – ADD MODULE ITEM –.
2. Select – SPECIALIZED DRAG-AND-DROP – in the Module item drop-down menu.
3. In the Statement field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
5. If you select the *Hide Info Part* feature, questions and drag-and-drop feature will be displayed separately.

Adding an Image or Video (Optional)

1. Click on – SELECT IMAGE –.
    - Upload your image.
2. Switch Video ON.
    - Insert video URL (only YouTube and Vimeo are accepted).

Creating Zones and Objects

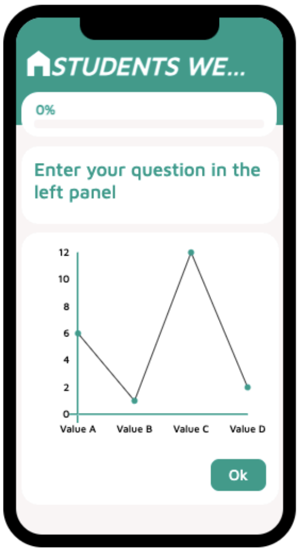
1. Determine which zone will correspond to the valid answer – top or bottom –.
2. You can customize each zone with its unique color, audio and labelling.
    - The audio feature indicates right and wrong answers. You may use the default audio or add a new sound file.
3. You can label each zone or add a word to it.
4. The drag word is the moveable object.
    - Choose color of the object.
    - Write word to be contained in the object.

Finalizing Item

1. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

10. GRAPH

A **Graph** item provides participants with a visualization of data based on their inputs during the study. The **TIIM** application can create graphs that will enable the participants to see their data over time or as a result of a calculated variable. When creating a graph over time, the y-axis will show the module item's score while the x-axis will show its completion date. This is not a query item, so participants only need to click an acknowledgement button to proceed.

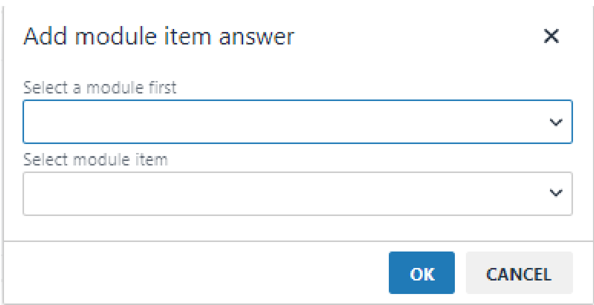


You can see the **Graph** item instructional video through the following link:

https://youtu.be/hBhR_y7D76A?si=lQWKfL3b4JZscj0s

Creating a Graph Item

1. Click on – ADD MODULE ITEM –.
2. Select – GRAPH – in the Module item drop-down menu.
3. In the Statement field, insert your text.
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
4. In the Description field, insert additional information (optional).
    - Customizing your message: click on – DYNAMIC TEXT –.
    - Select the items you want to automatically be inserted in your message.
5. In the Add dynamic text variable field, click in – DYNAMIC TEXT –.
    - The following prompt will appear:



    - Select the module containing the desired item.
    - Select the item from within the module.
    - Repeat procedure for each variable.

Labelling

1. Click on the Button Label field and add text.
2. Click on the Y axis field and add text.
3. Click on the X axis field and add text.

Finalizing Item

1. Click on – SAVE –.
    - You will be directed to the Modules dashboard.

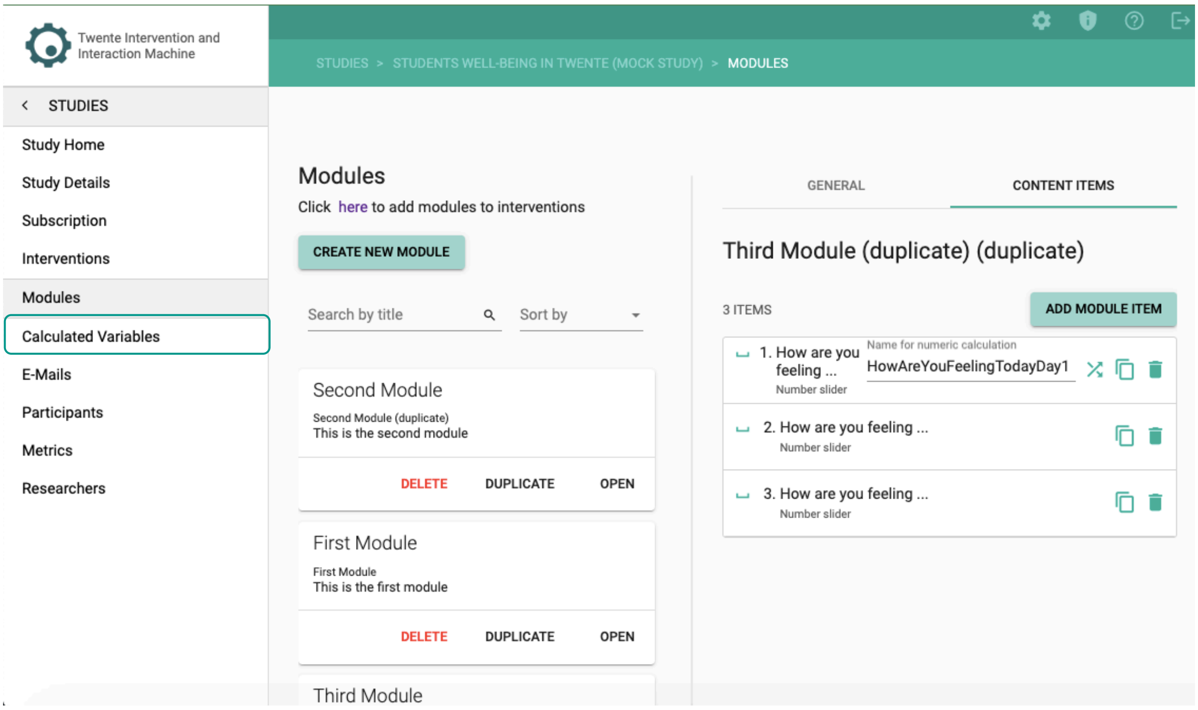
CALCULATED VARIABLES

A **Calculated Variable** enables you to collect the participant's answers on specific module items and later show your participants feedback based on an equation linked to their previously filled-in items.

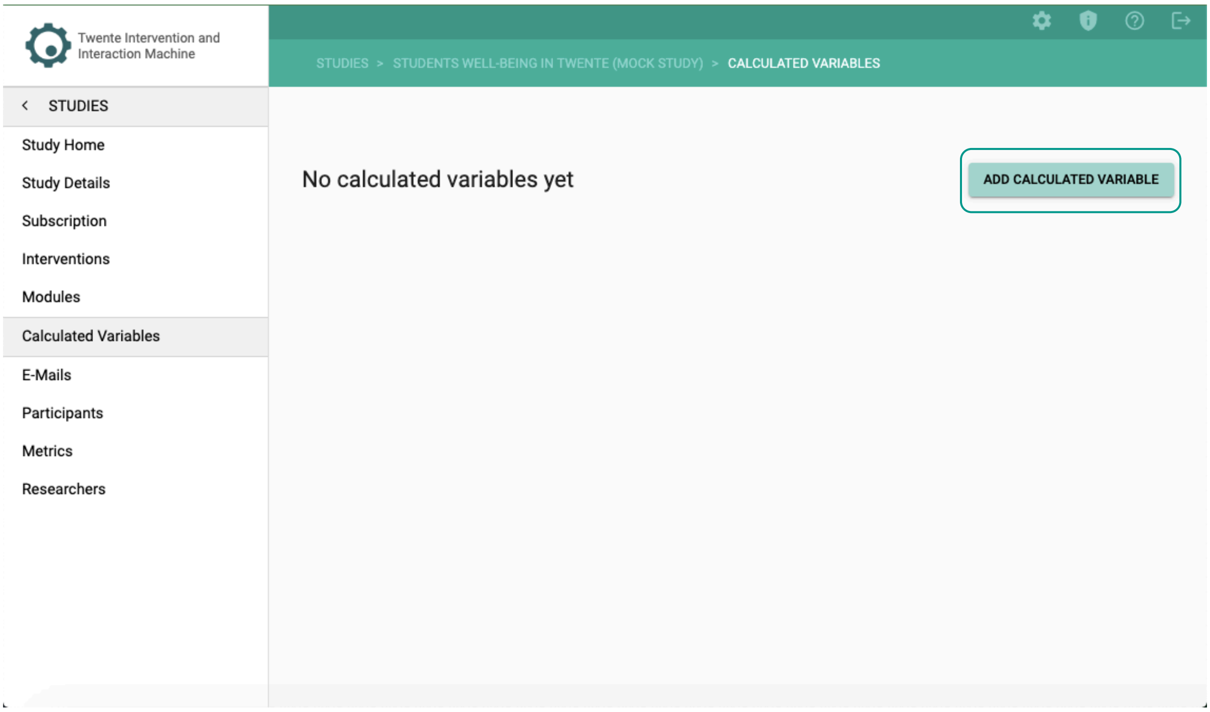
WRITING THE EQUATION

After creating the **Calculated Variable** item, you have to write the equation for it.
You can see the **Calculated Variable** item instructional video through the following link:
https://youtu.be/D7E2H_n-PEA?si=29xMVj6YTgKbt_5c

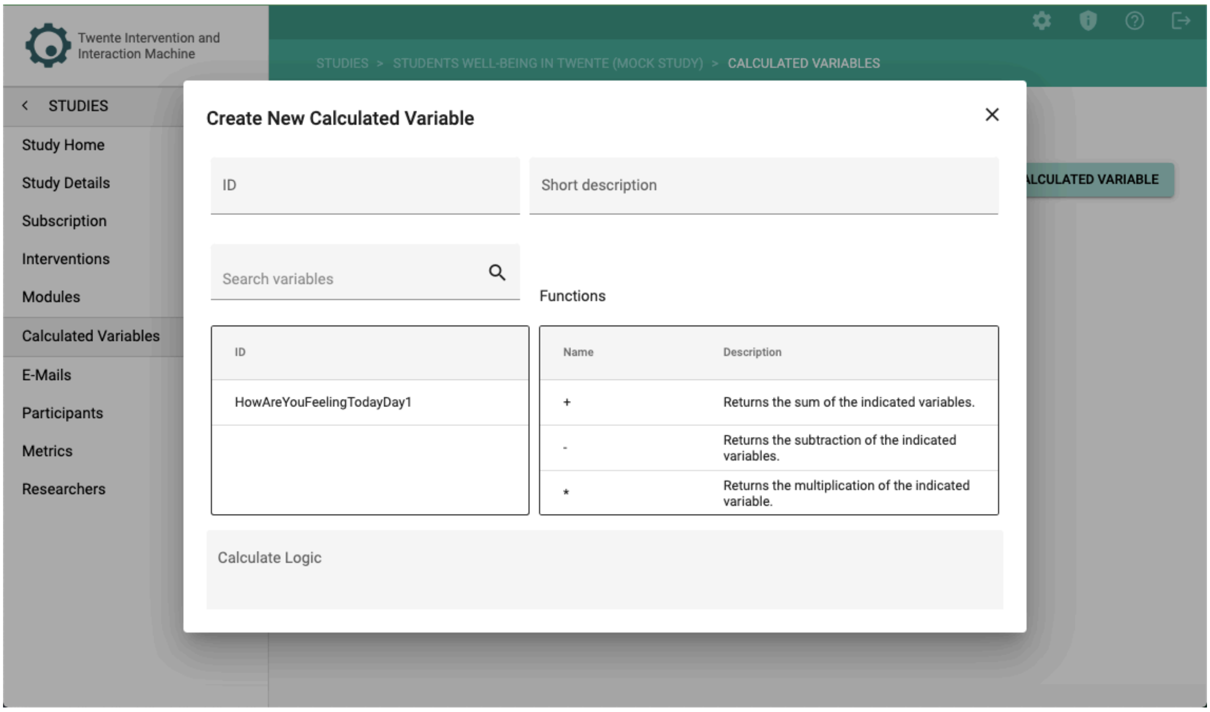
1. On the sidebar, click on – CALCULATED VARIABLES –.



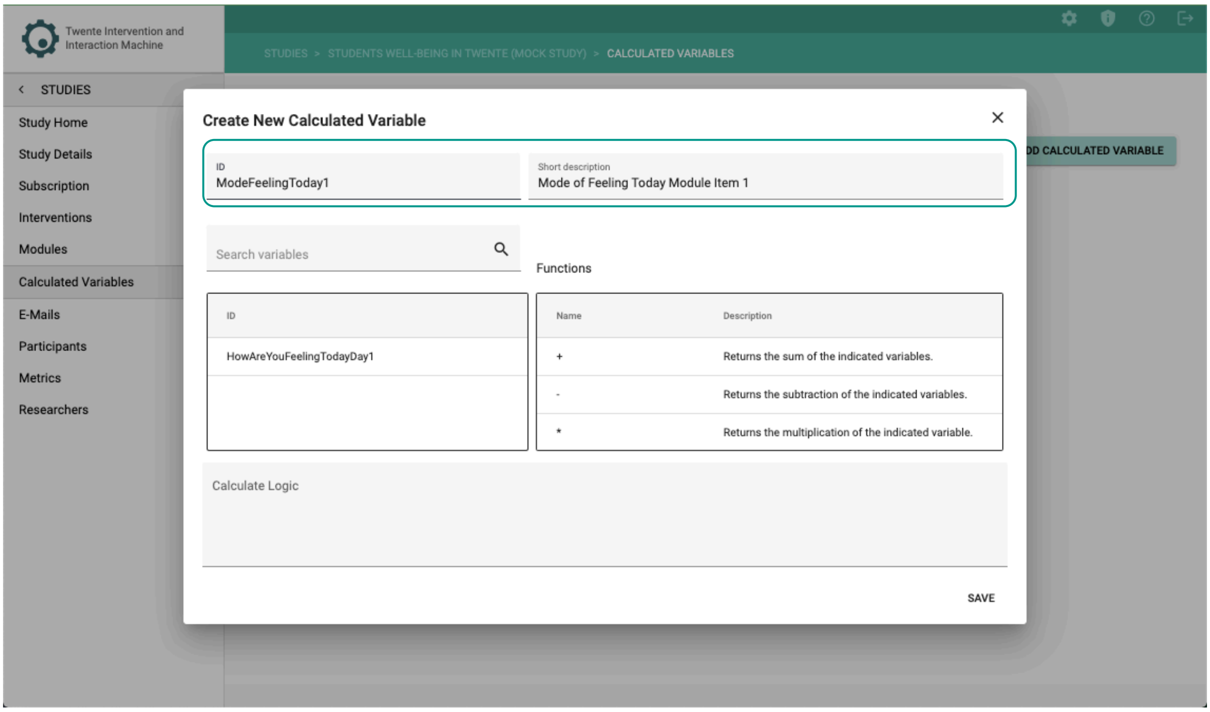
2. Then on the right side, click on the – ADD CALCULATED VARIABLE –.



A new page will appear:

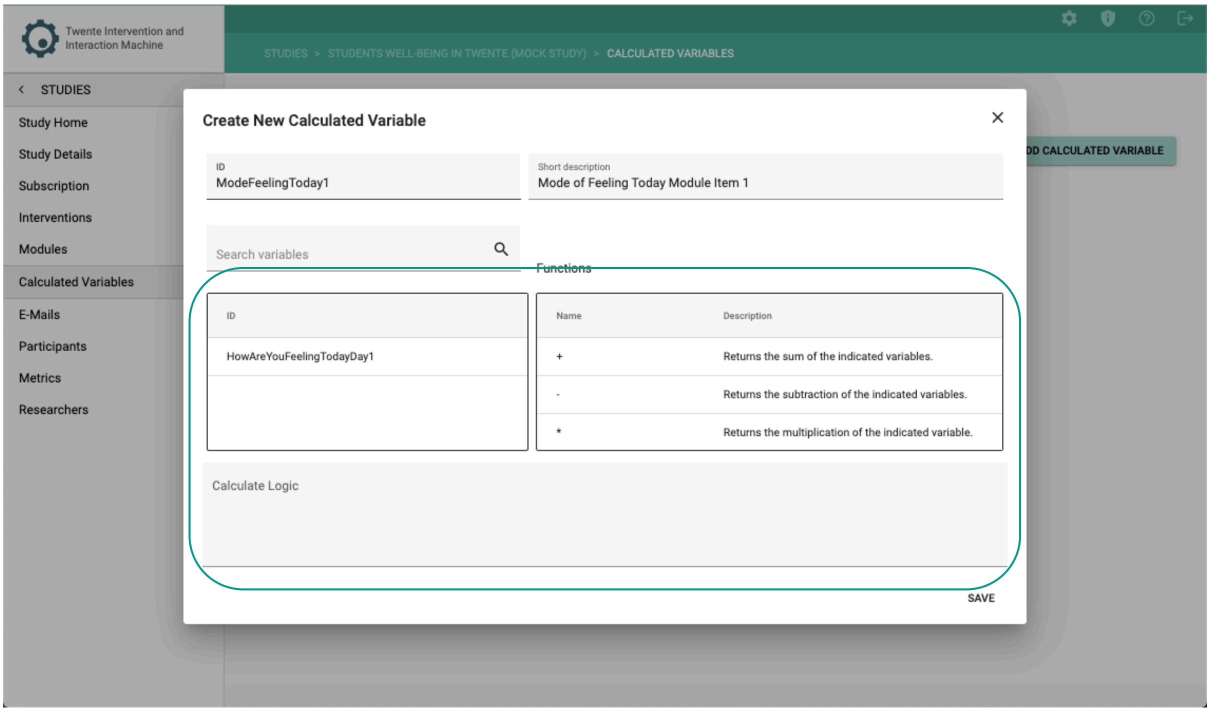


3. Give your calculated variable an ID and description.

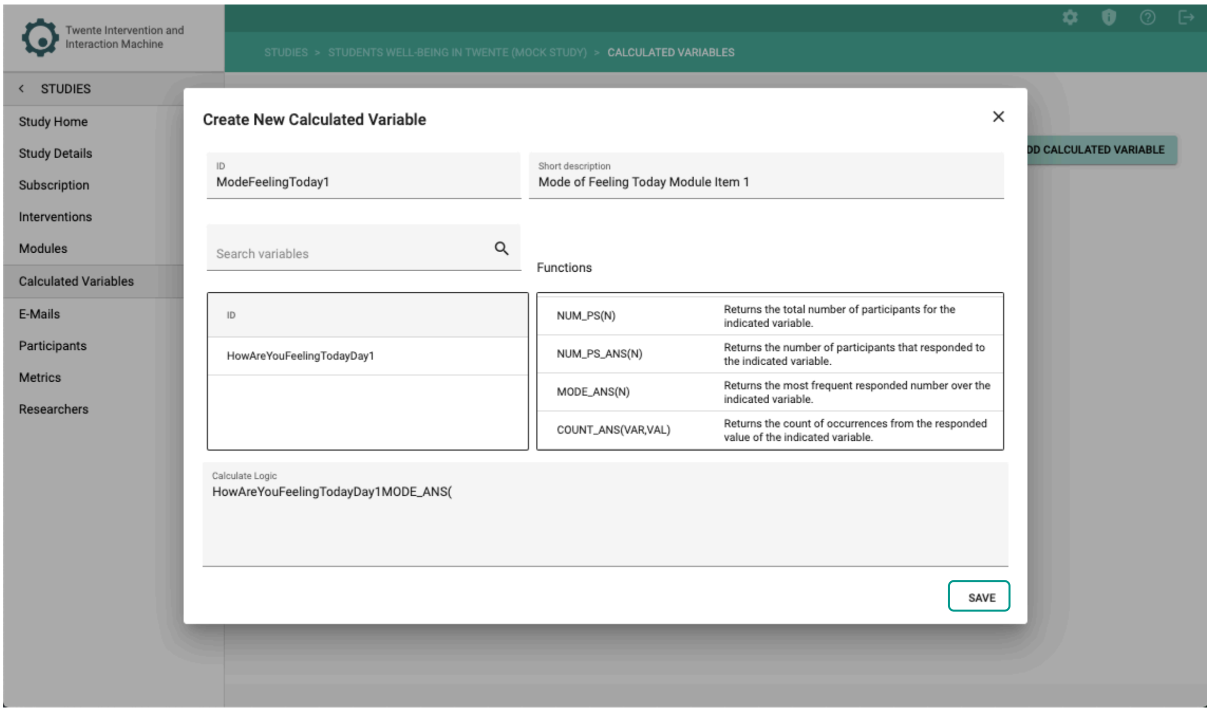


Under “Functions”, you will notice a list of formulas. This list can help you make the calculated variables easier. For a complete functions overview and description, see Appendix C.

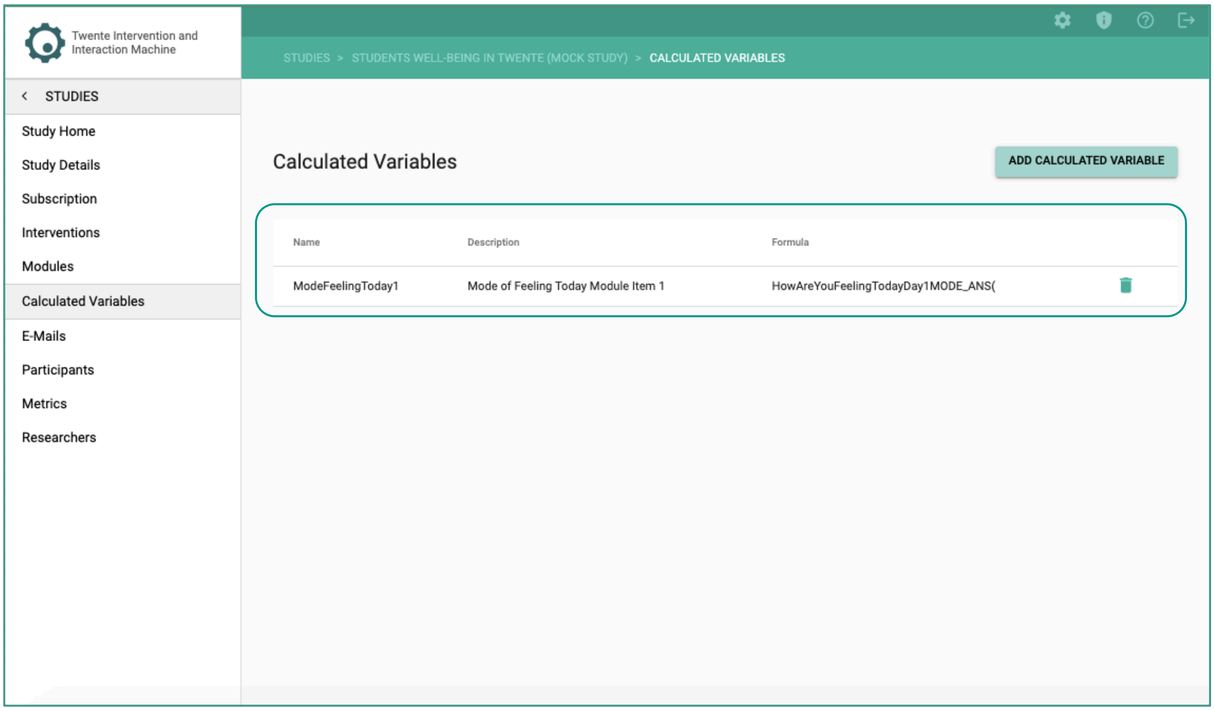
4. Drag and drop the ID (i.e., calculation names) and functions to the Calculate Logic field. You can also type it manually if you prefer.



5. Click on – SAVE –.



The saved Calculated Variable will appear on the page:

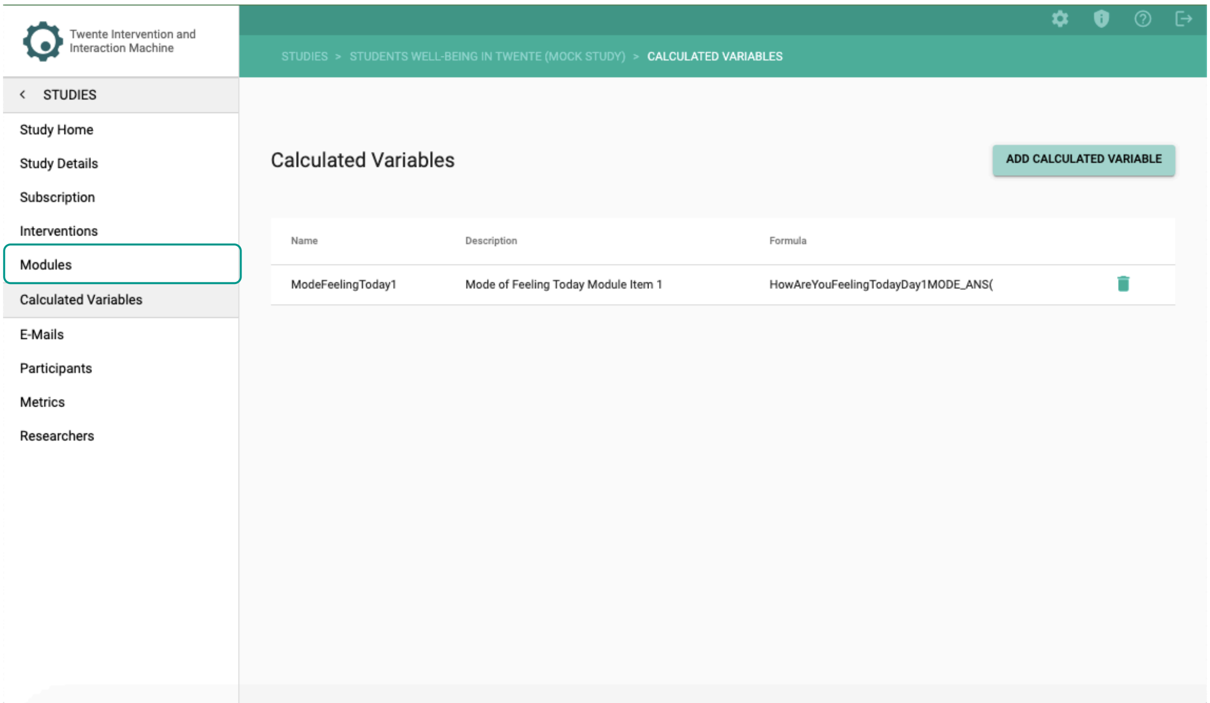


SHOWING THE CALCULATED VARIABLE AS FEEDBACK

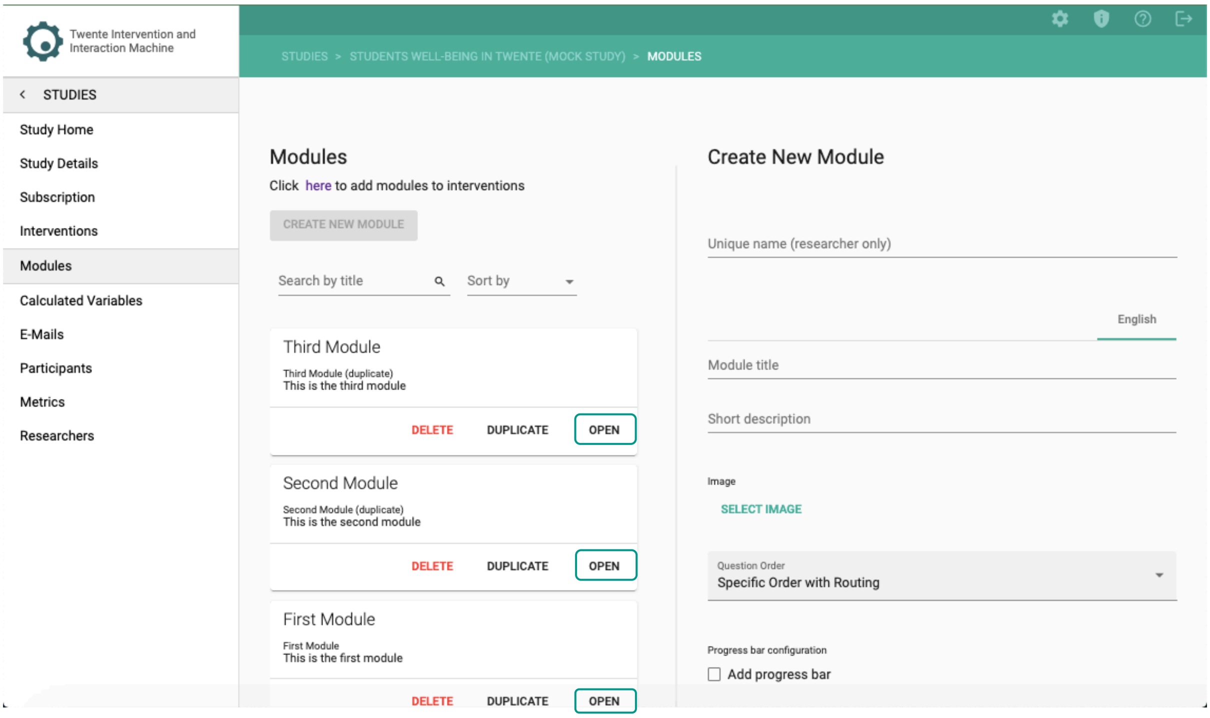
Once the participant has answered the items used for the **Calculated Variable**. You can see the **Calculated Variable Feedback** instructional video through the following link:

https://youtu.be/CIYlwv8E7yw?si=_fzVkQUy7Sk99mOI

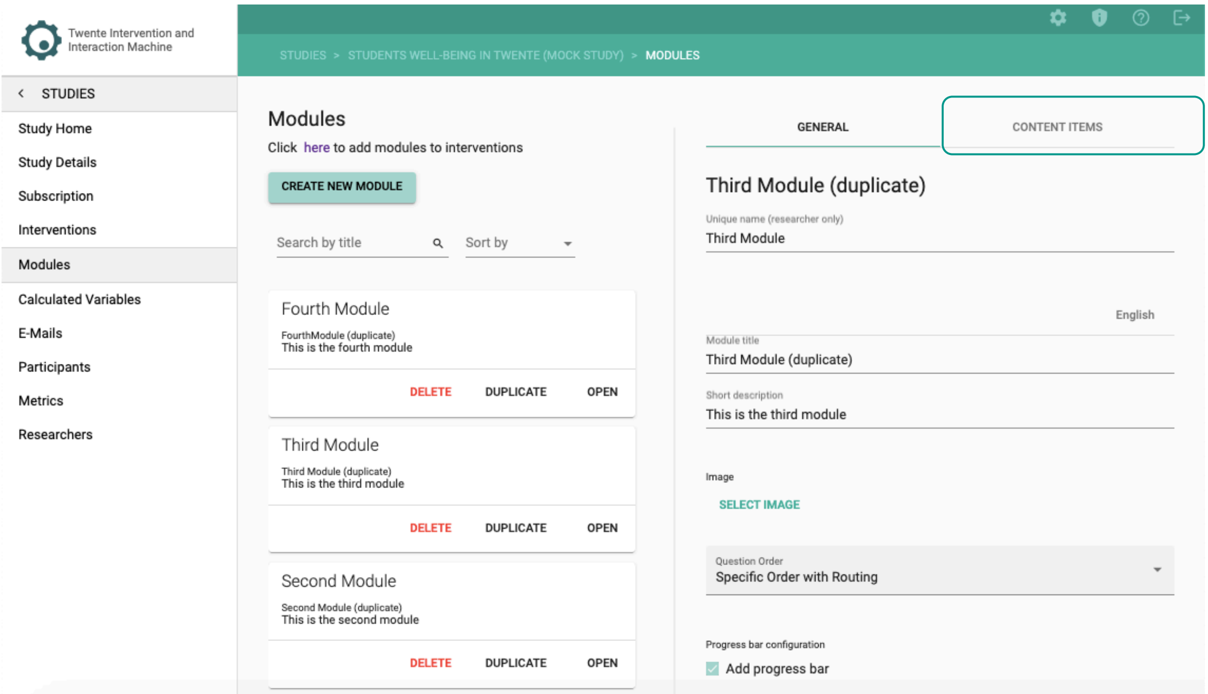
1. On the sidebar, click on – MODULES –.



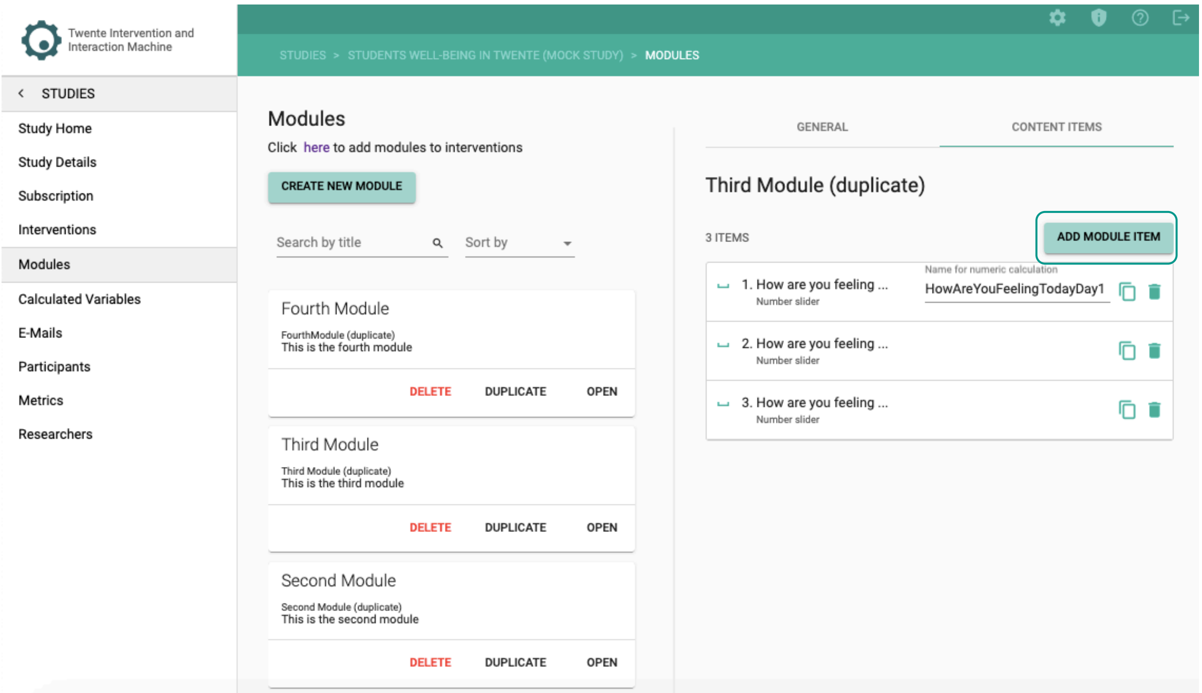
2. Open the module you would like to show the calculated variable.



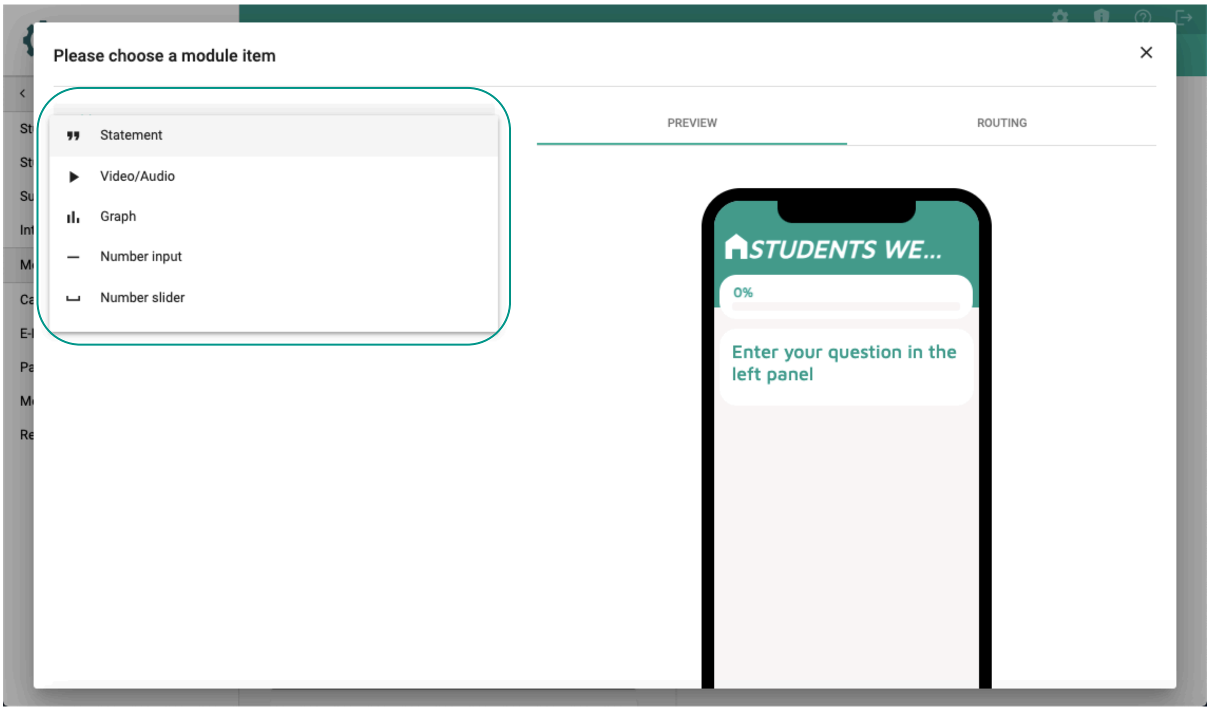
3. Go to – CONTENT ITEMS –.



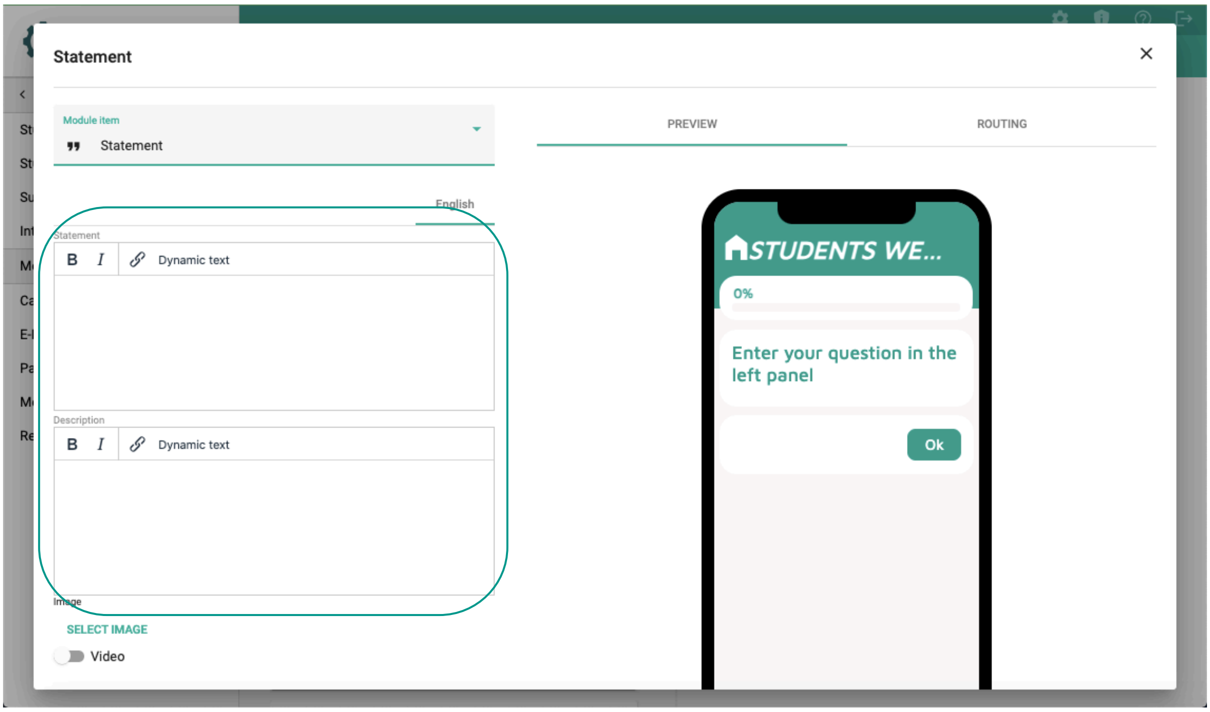
4. Click on – ADD MODULE ITEM –.



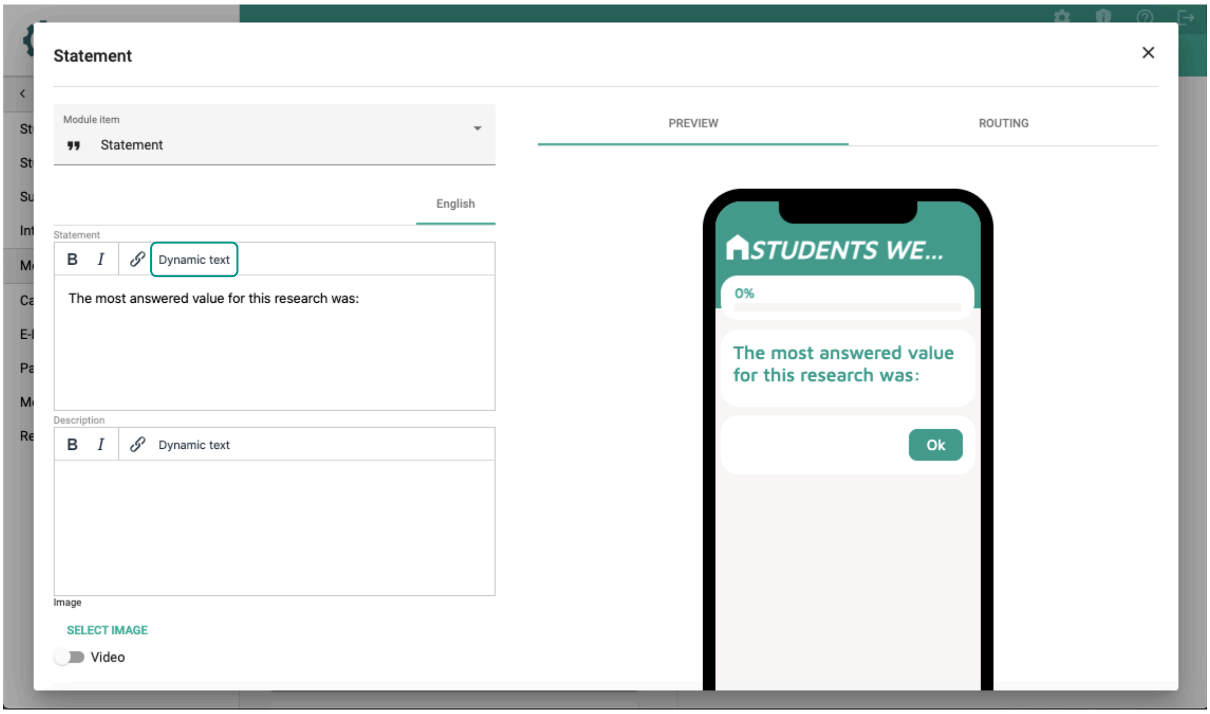
5. Select any item type.



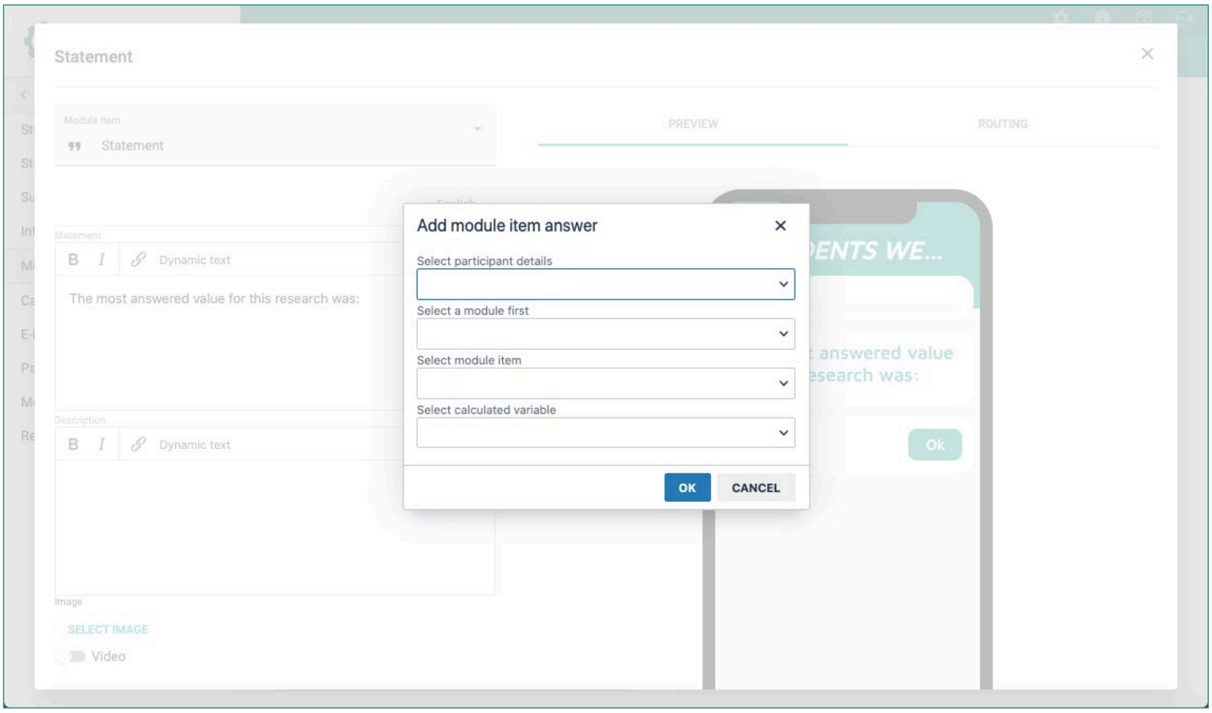
6. Fill in your question/statement and description.



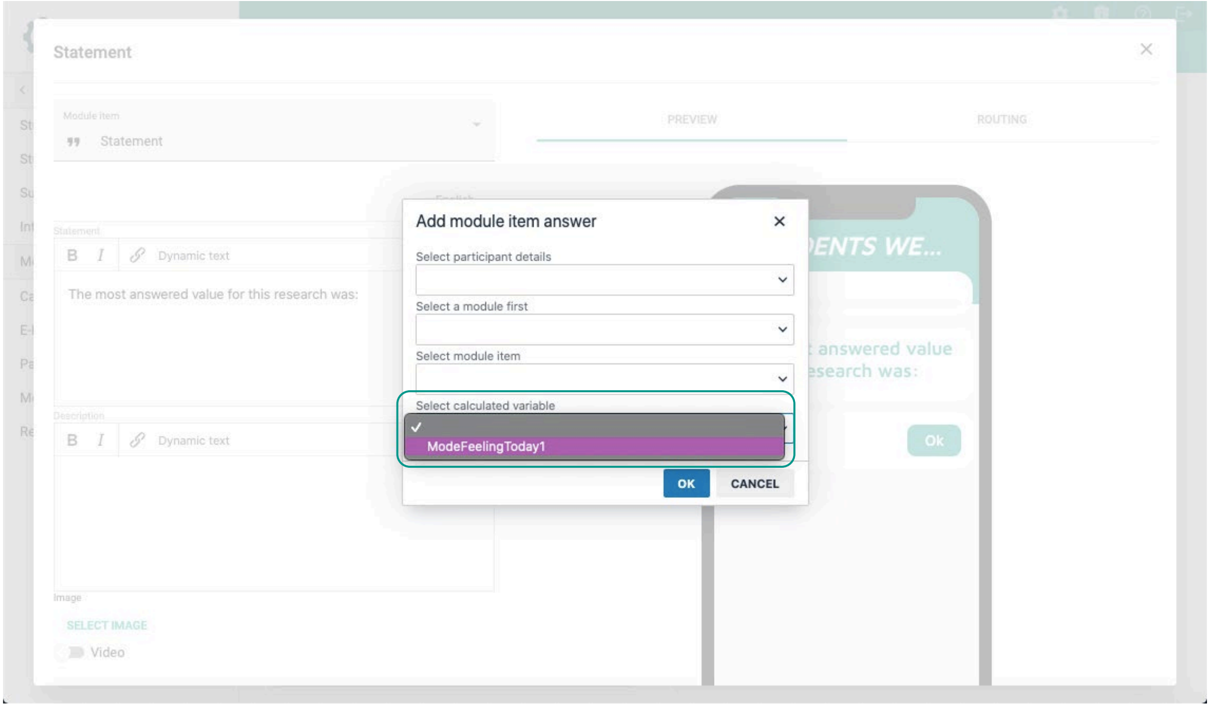
7. In the question or description field, click on – DYNAMIC TEXT –.



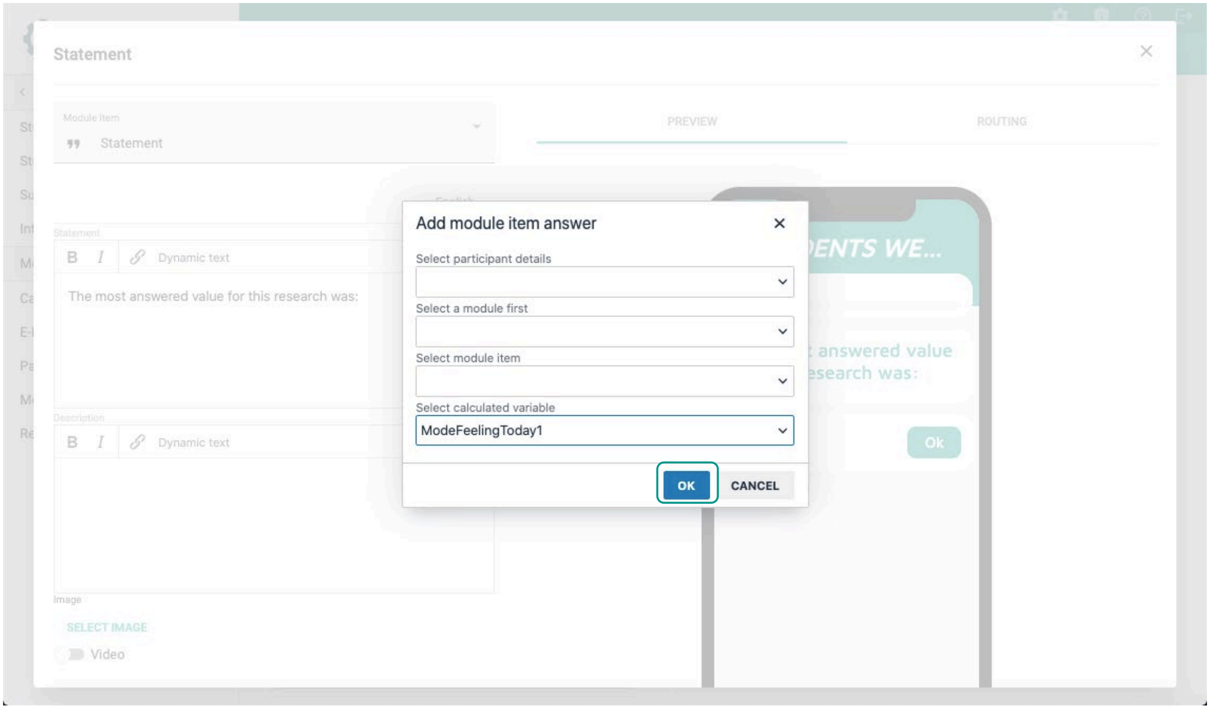
The following screen will open:



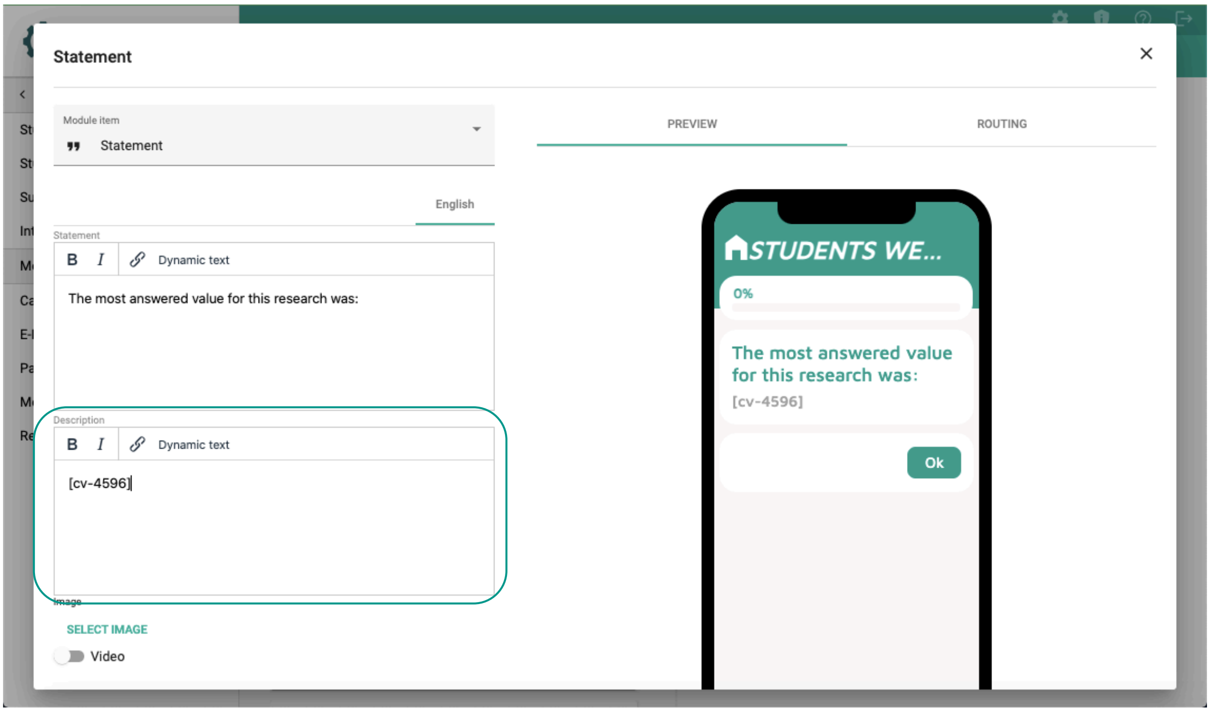
8. From the dropdown list, select the calculated variable you want to show.



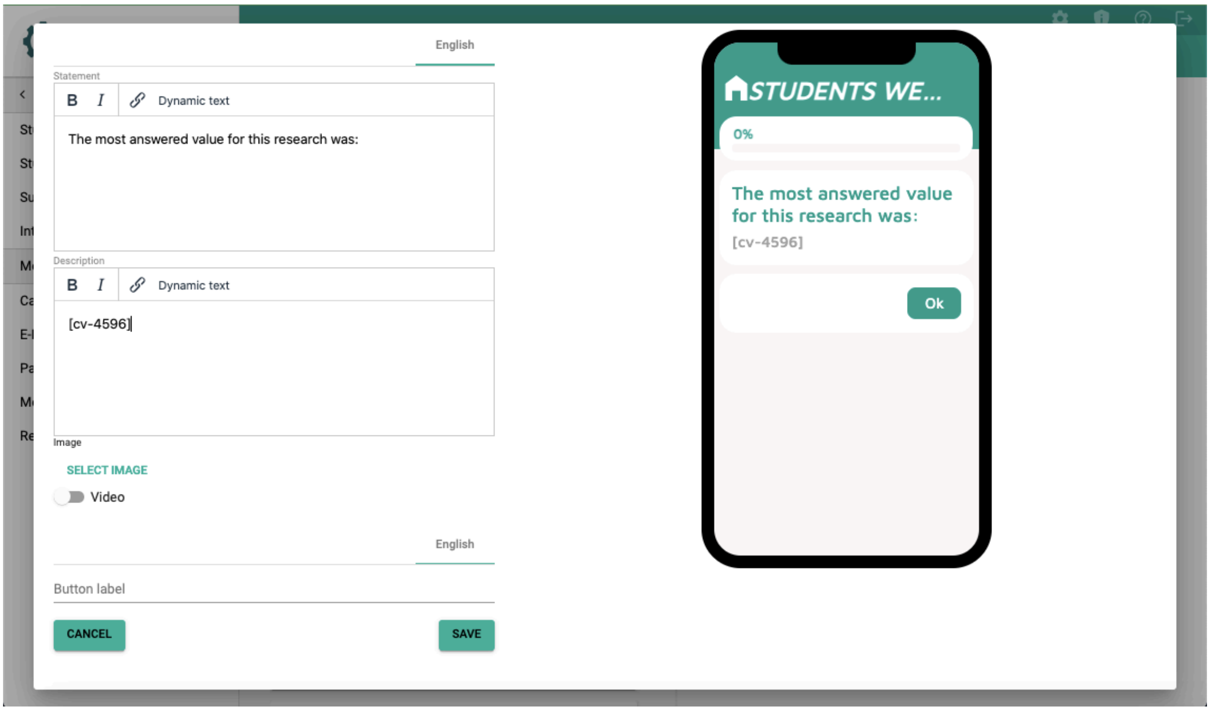
9. Click – OK –.



In your preview screen, **a code will appear**, this code will return a value once the participant has filled in the questions used for the calculated variable:



10. Click on – SAVE –.

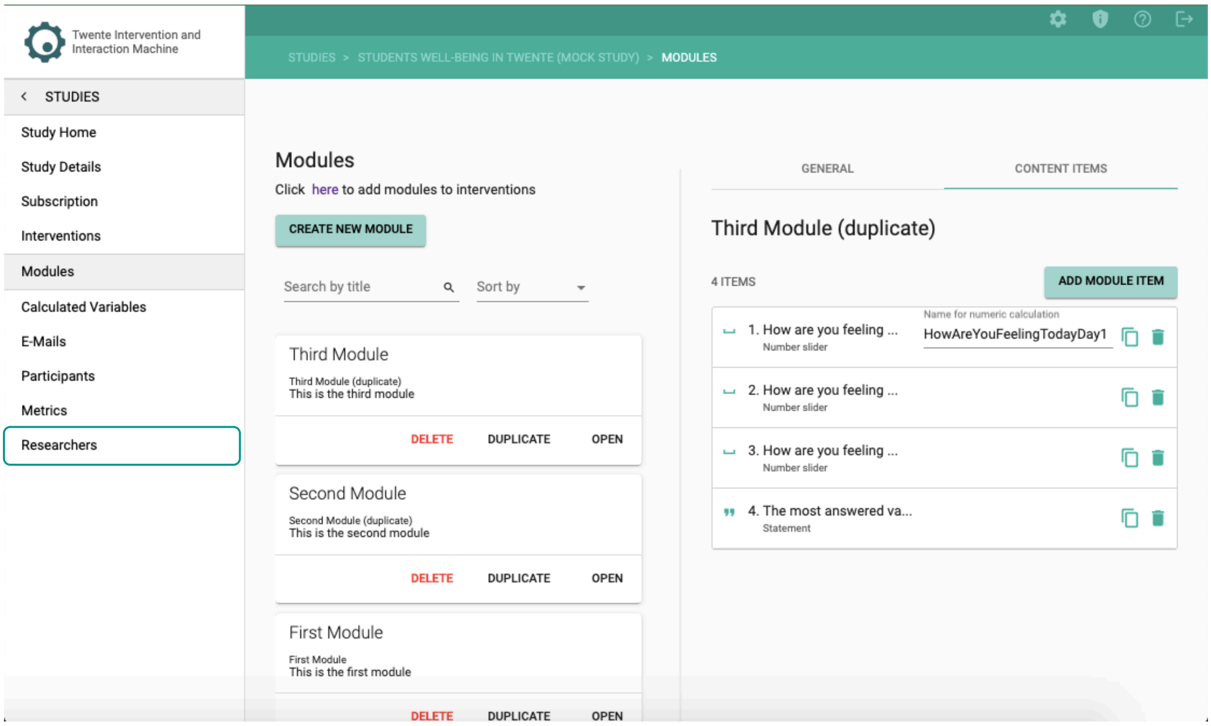


You can also enable Calculated Variables as a timing rule within the intervention. See the Timing Rules section.

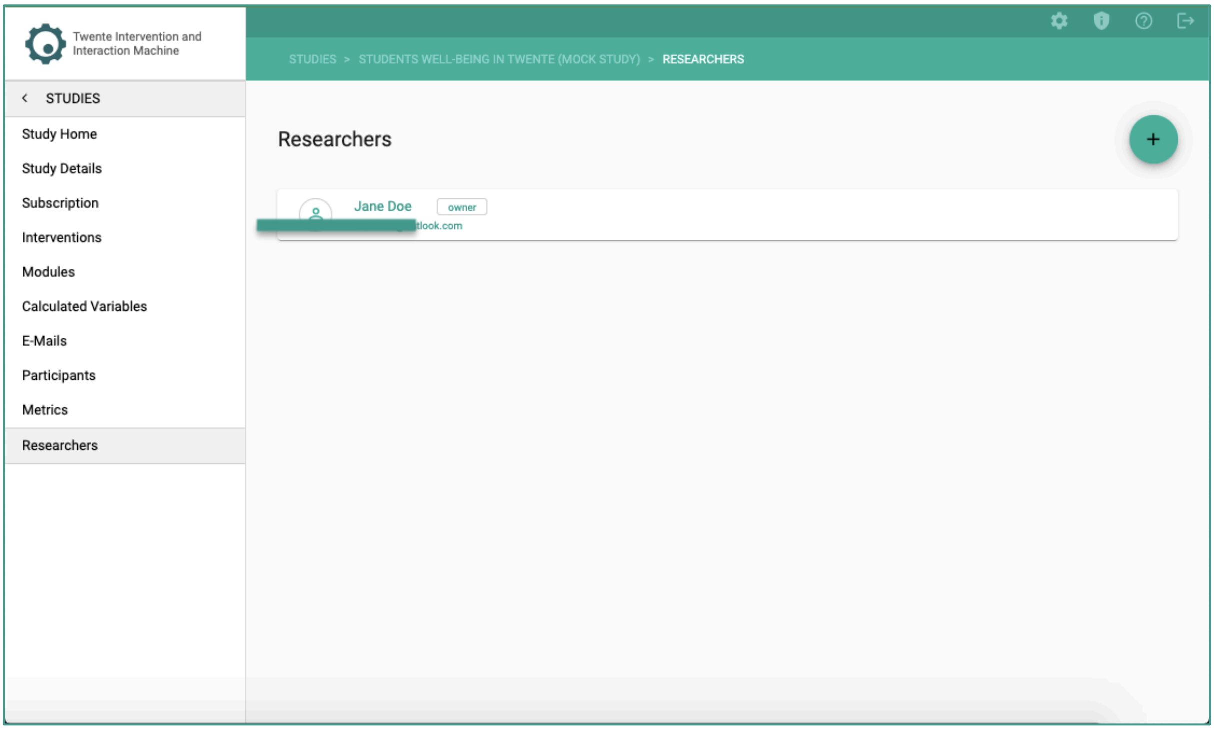
MANAGING RESEARCHERS (OPTIONAL)

TIIM allows you to edit your details as the main researcher, add other researchers to your study, and edit their study privileges.

- On the sidebar, click on the – RESEARCHERS – page.

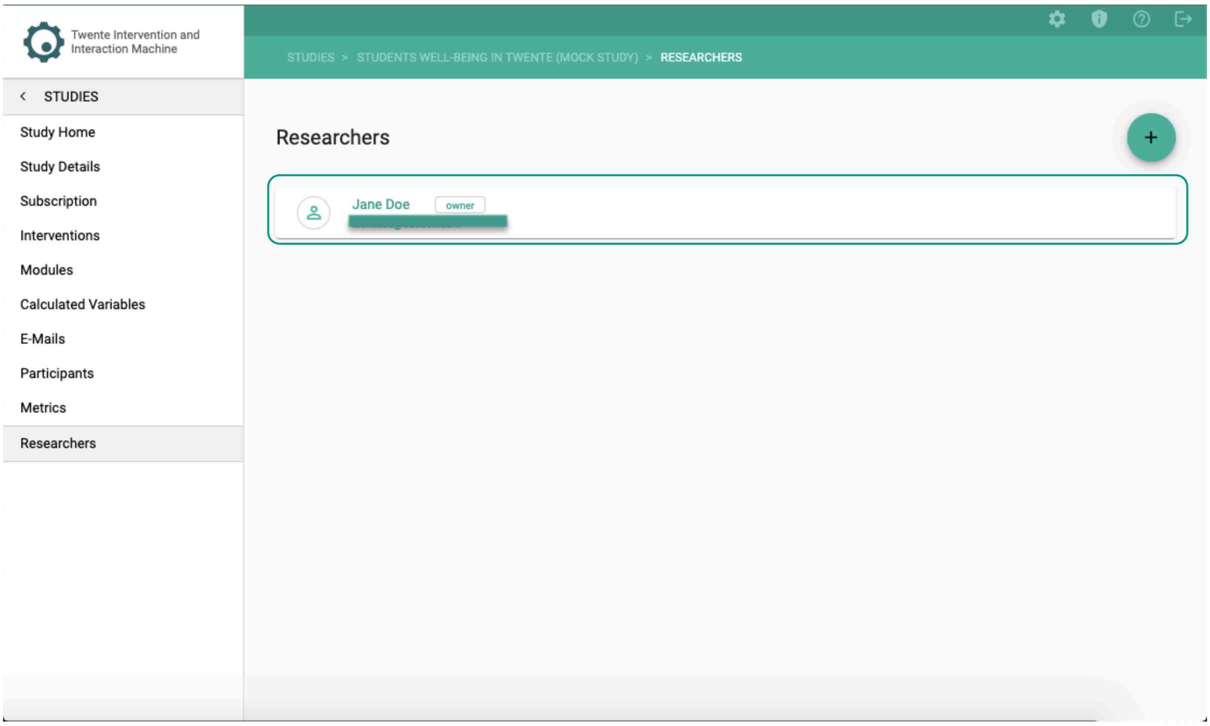


The following page will open:

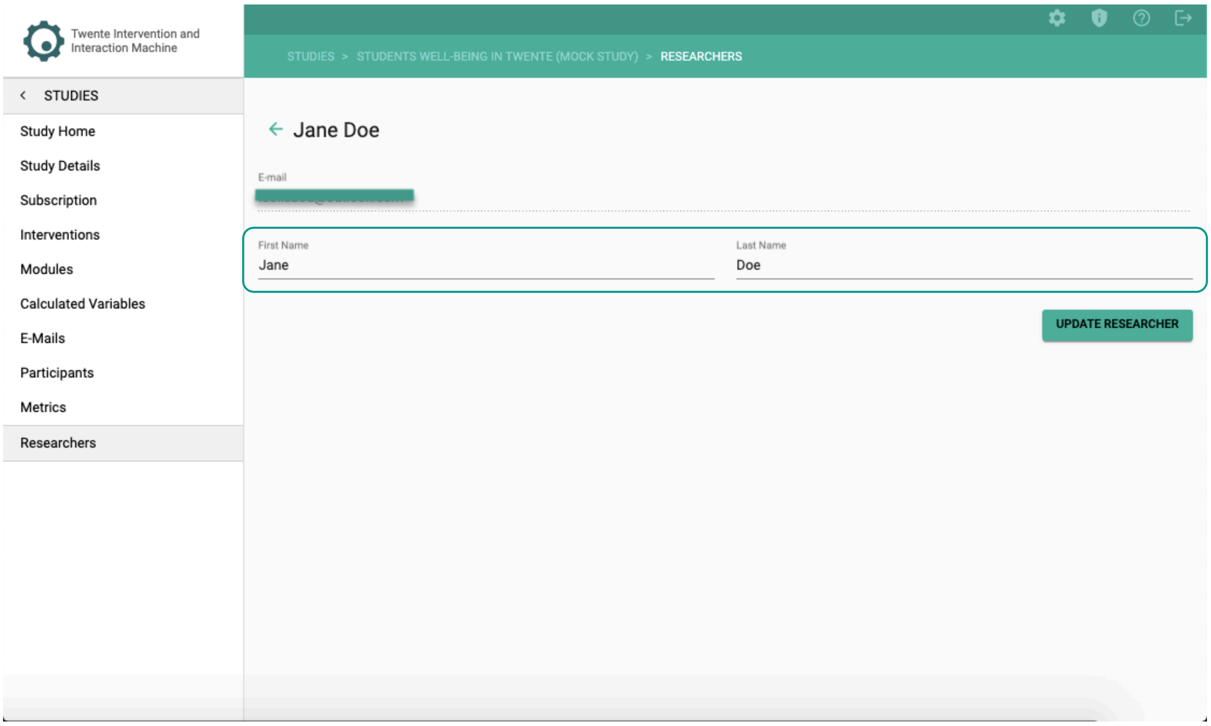


EDITING YOUR DETAILS

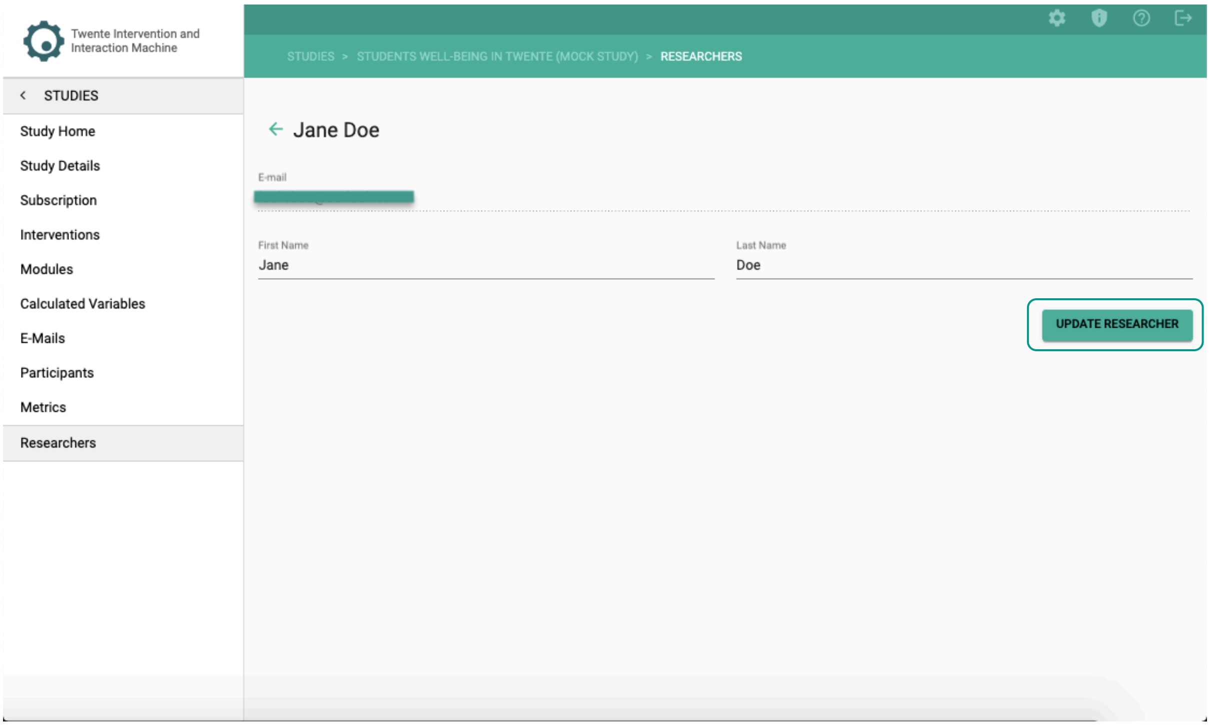
1. Click on the name.



2. Edit the first name and last name.

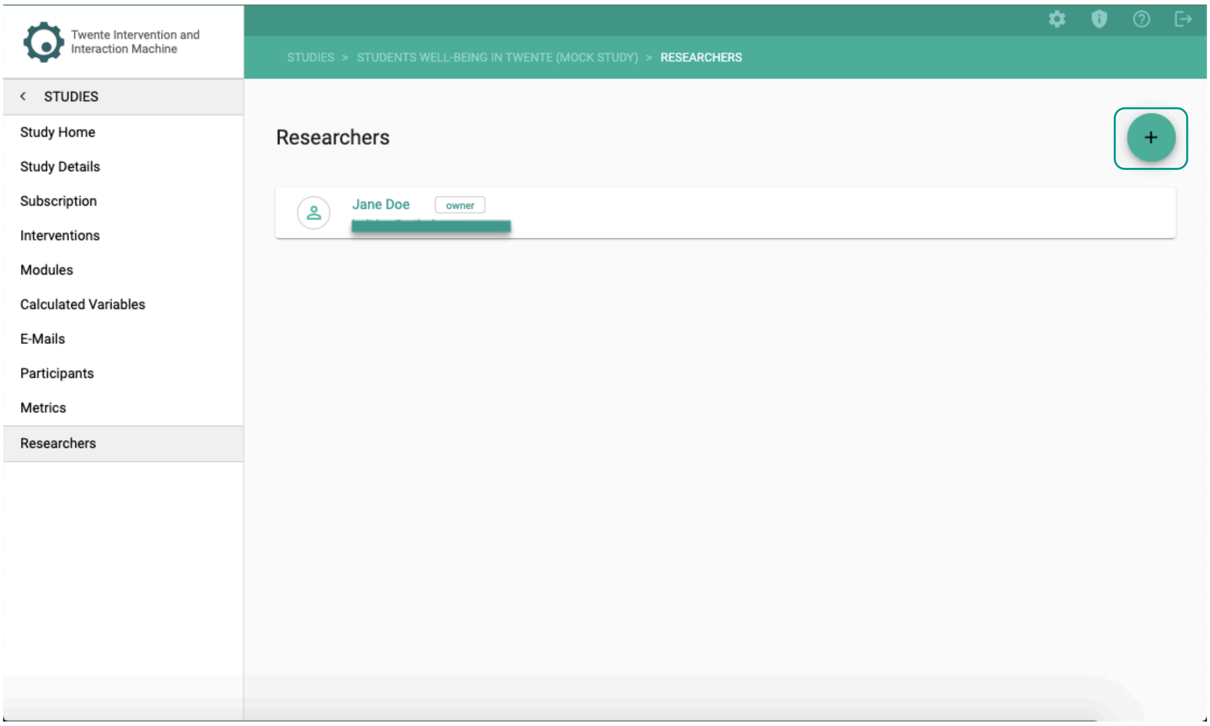


3. Click on – UPDATE RESEARCHER –.

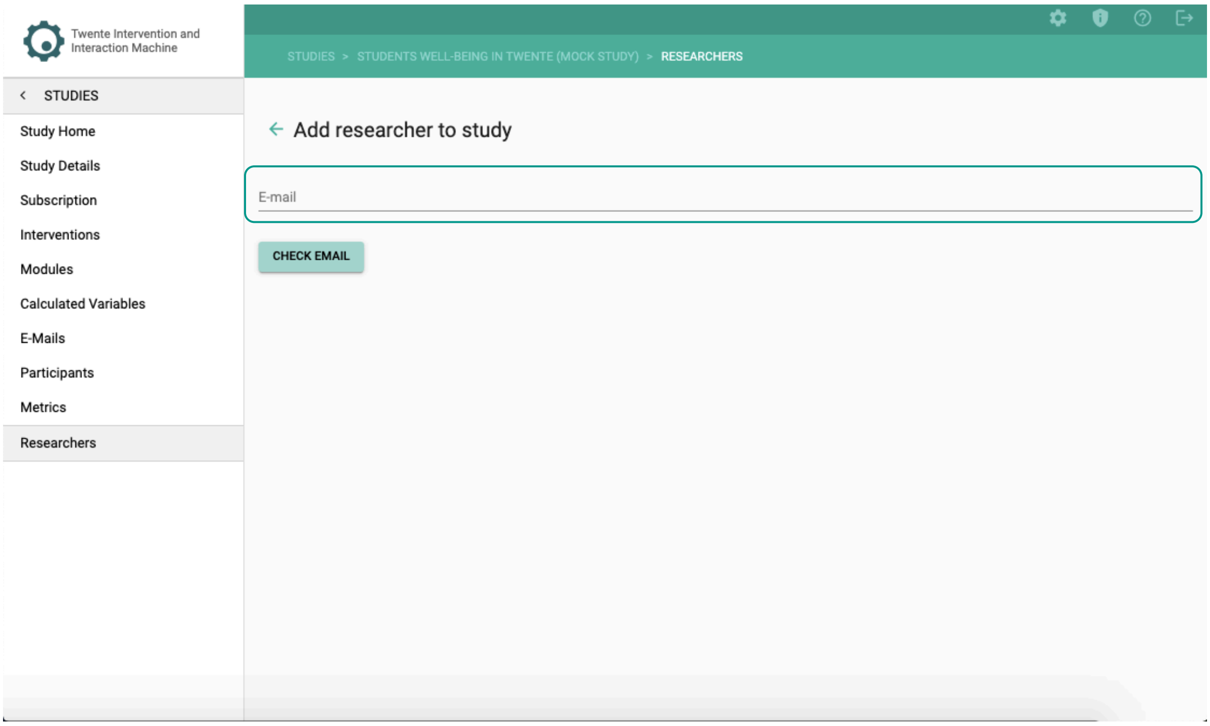


ADDING RESEARCHERS

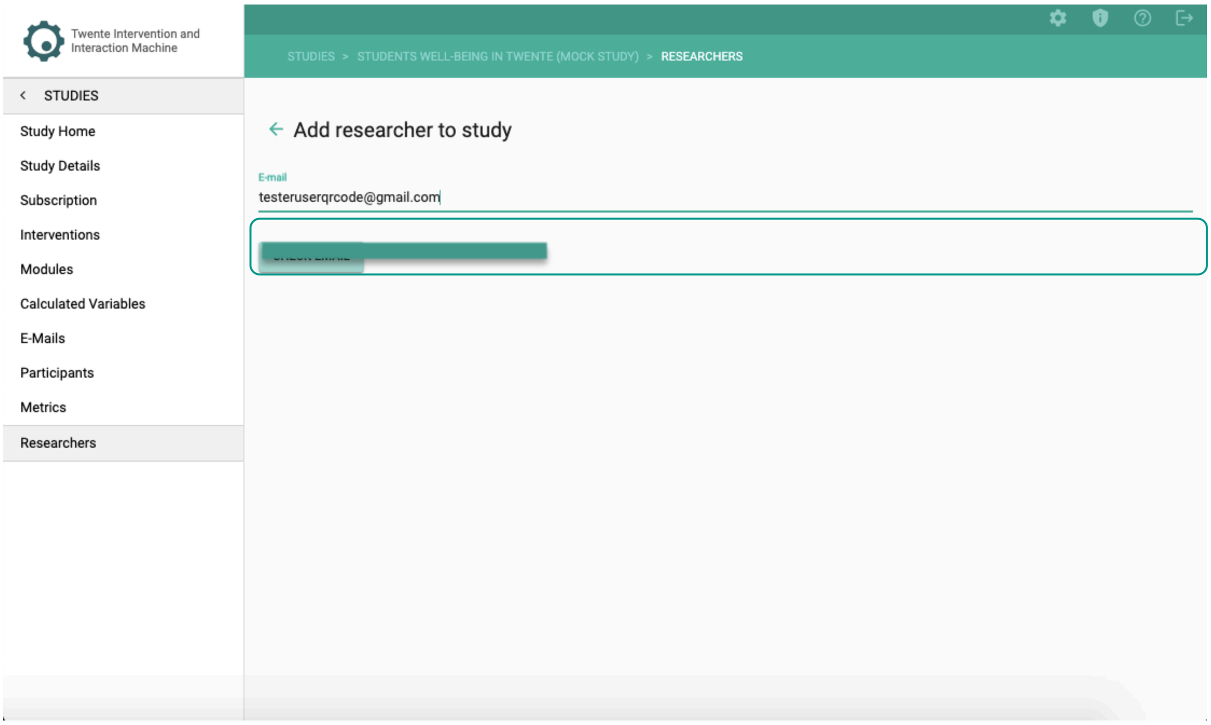
1. To add other researchers, click on the – + – icon.



2. Enter the email of the researcher you would like to add.

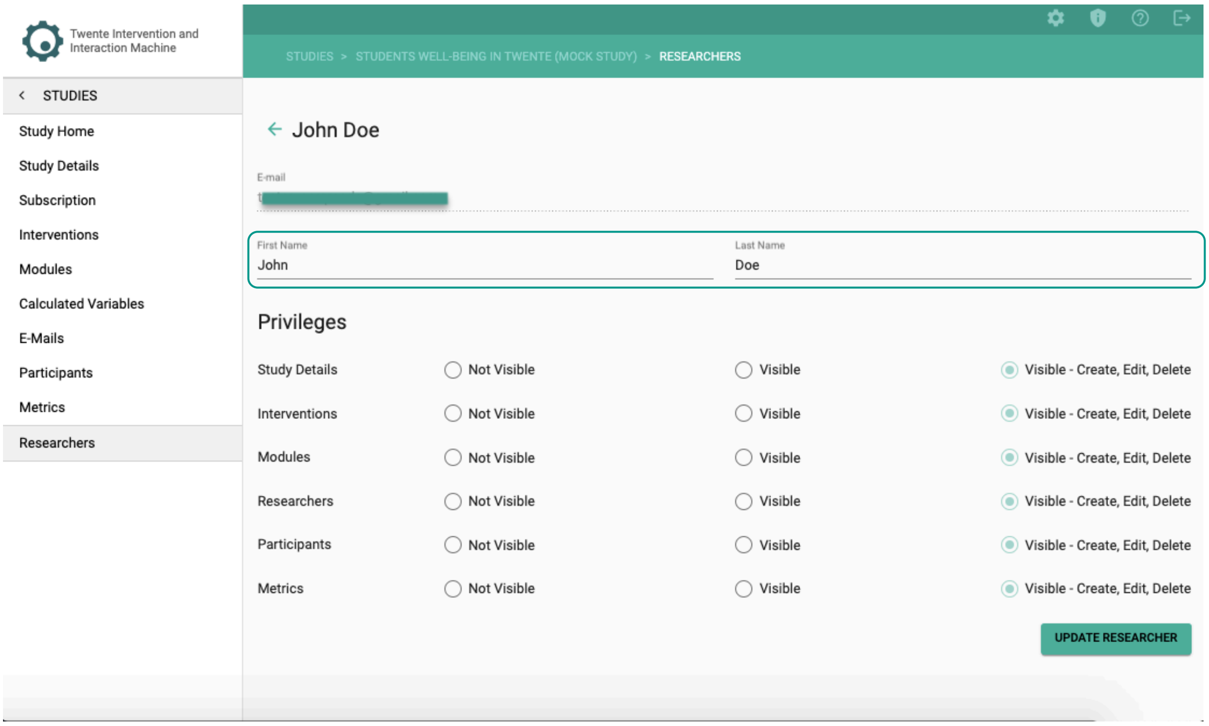


3. Click – CHECK EMAIL –.

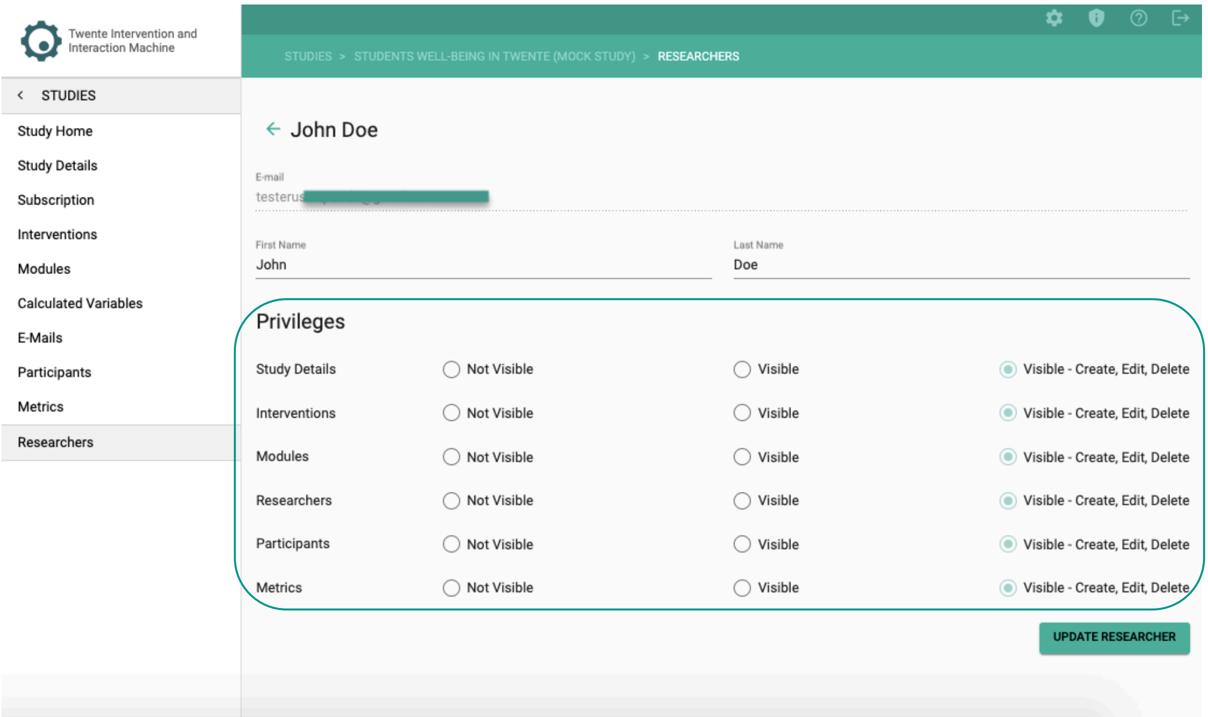


If the entered email is not a UT email, the Dashboard BMS Lab support will need to first approve the request.

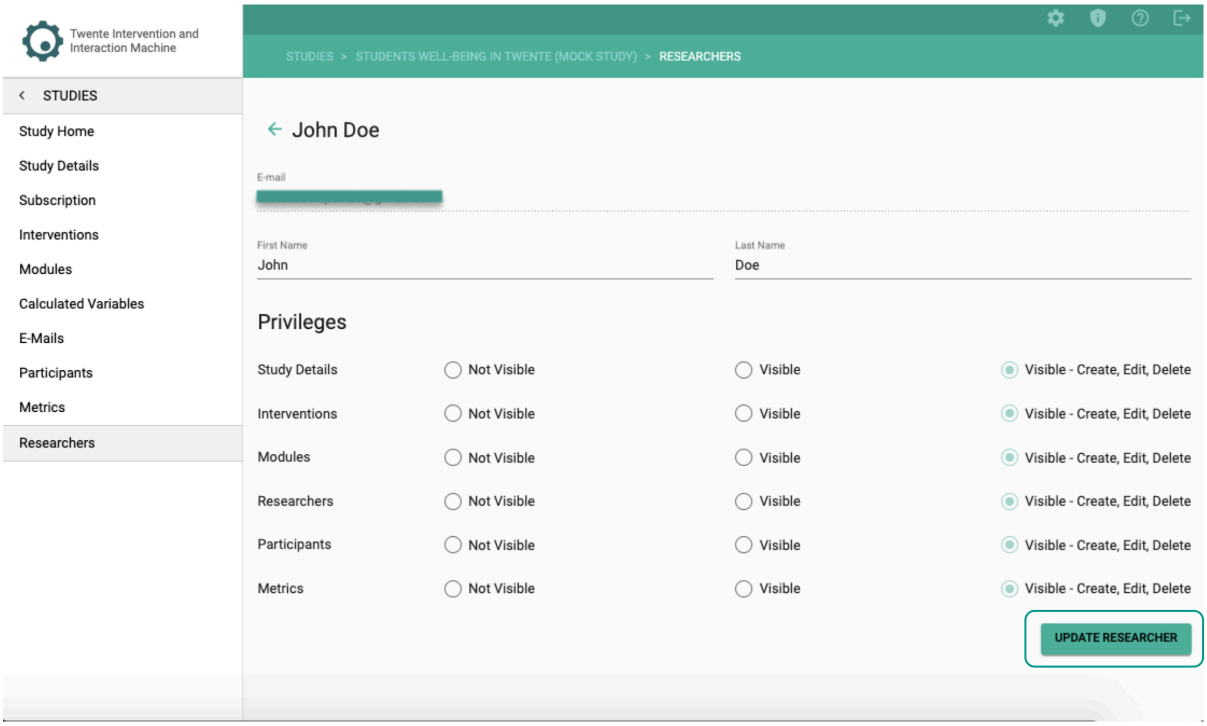
4. Edit the first name and last name of the researcher (optional).



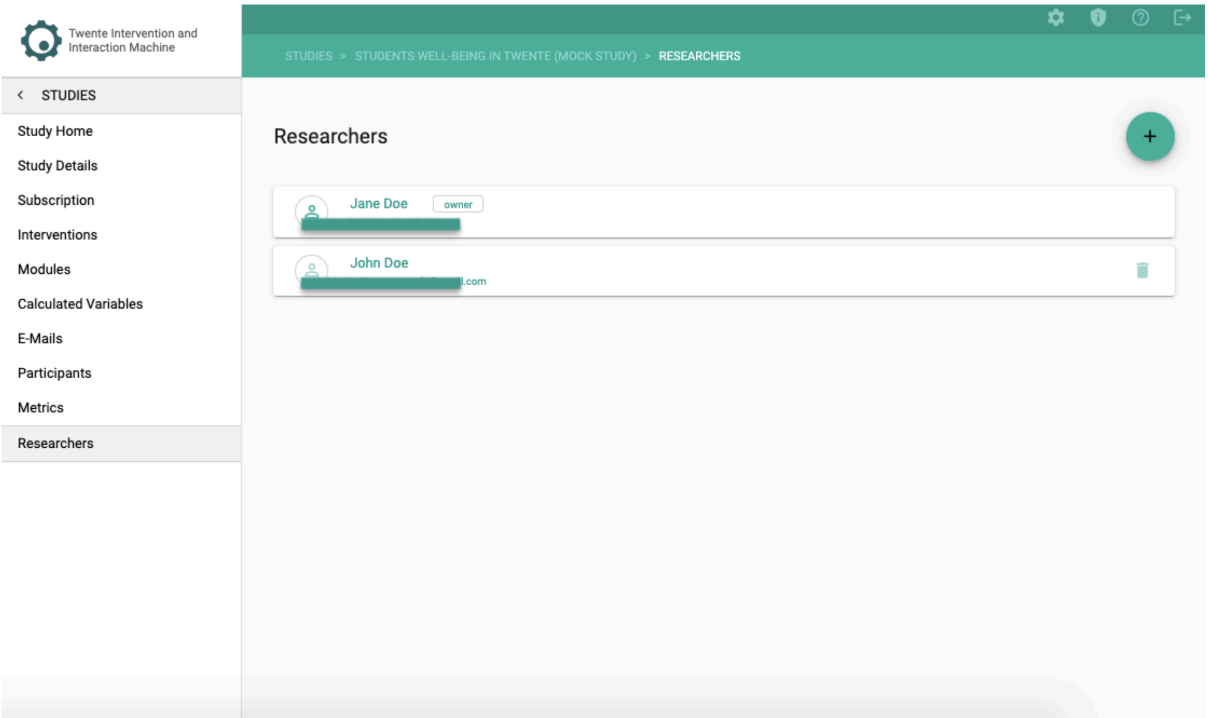
5. You can edit the Researcher's privileges to the sidebar pages: study details, interventions, modules, researchers, participants, and metrics.



6. Click on – UPDATE RESEARCHER –.



The following page will open:



7. To add more researchers, follow steps 1 – 6.

MANAGING PARTICIPANTS

Within **TIIM**, you can **Manage the Participants** of your study by enabling them to subscribe, sending them an e-mail, and assigning them to a specific intervention.

You can see the **Manage the Participants** video through the following link:

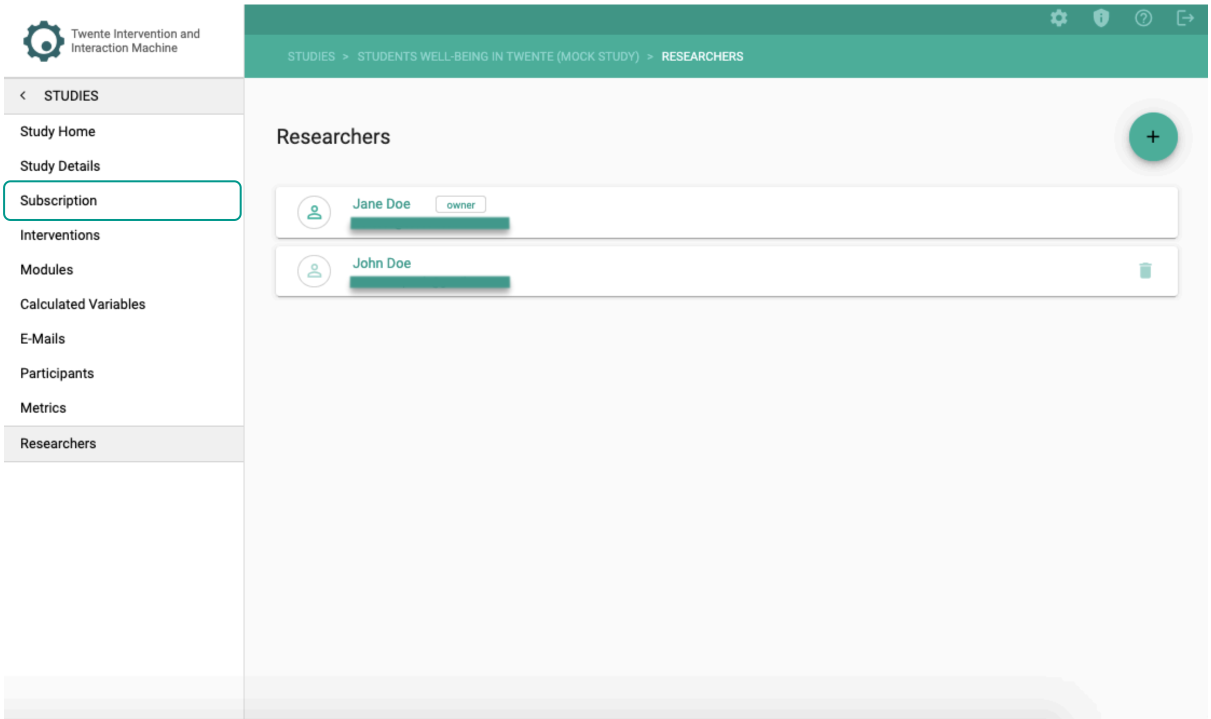
https://youtu.be/Y9HLulF2K0E?si=zOsnSbLZWKVgImA9

EDITING SUBSCRIPTION PAGE

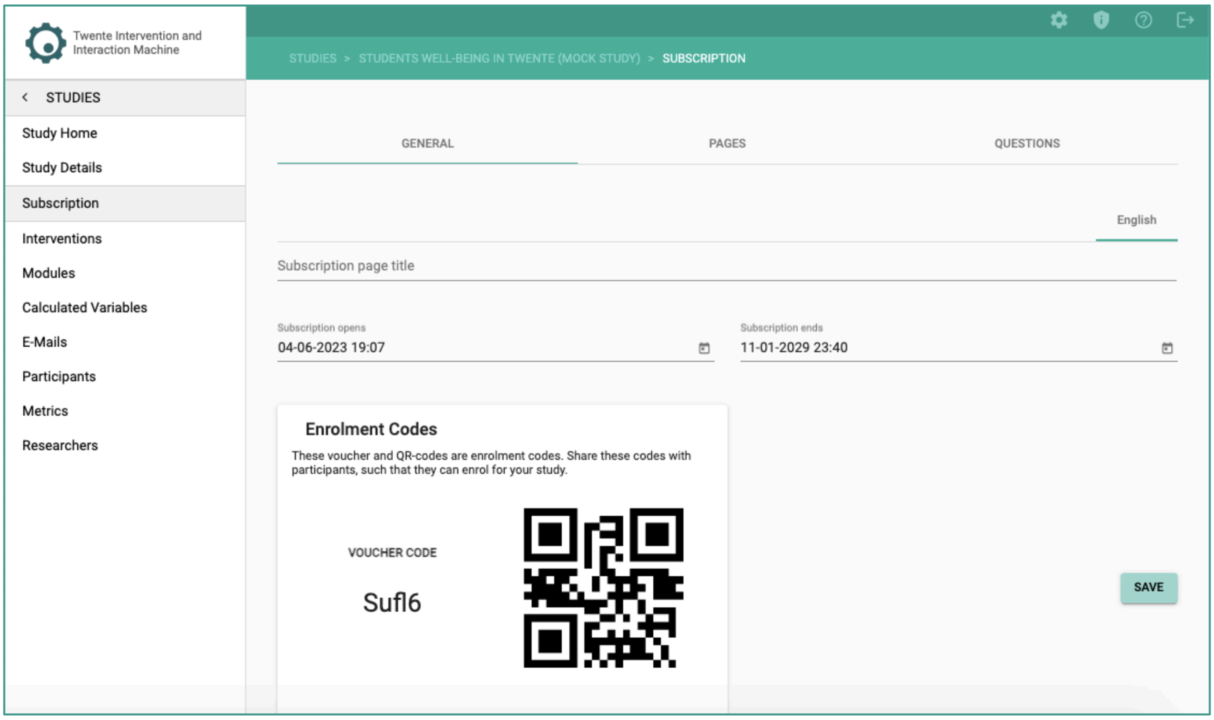
The subscription page is the first page participants will see when subscribing to your study.

You need to create a subscription page in order for participants to access your study.

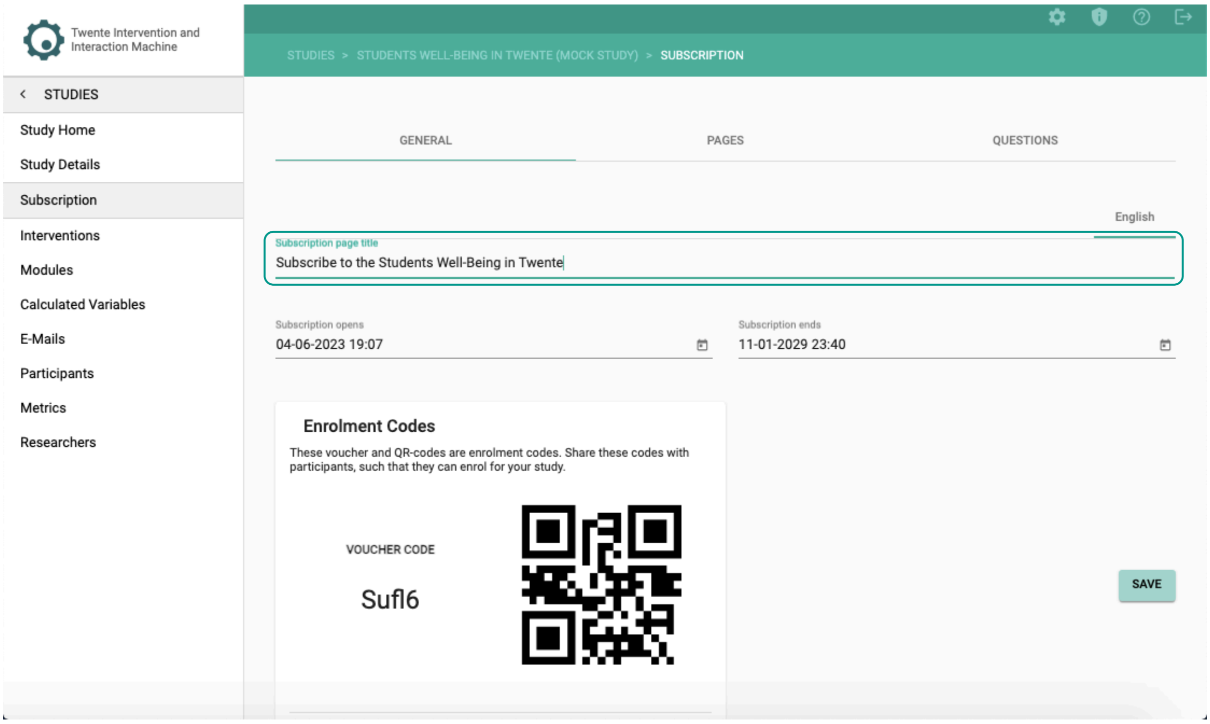
1. On the sidebar, click on the – SUBSCRIPTION – page.



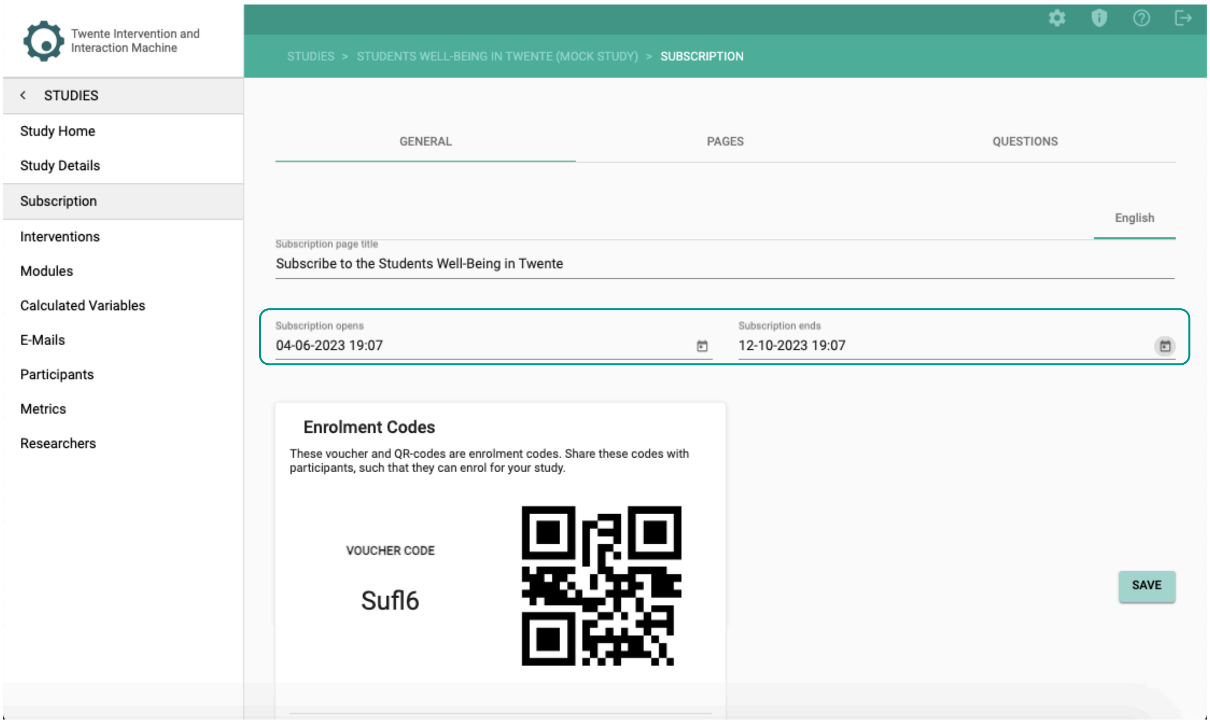
The following page showing the General Tab, will open:



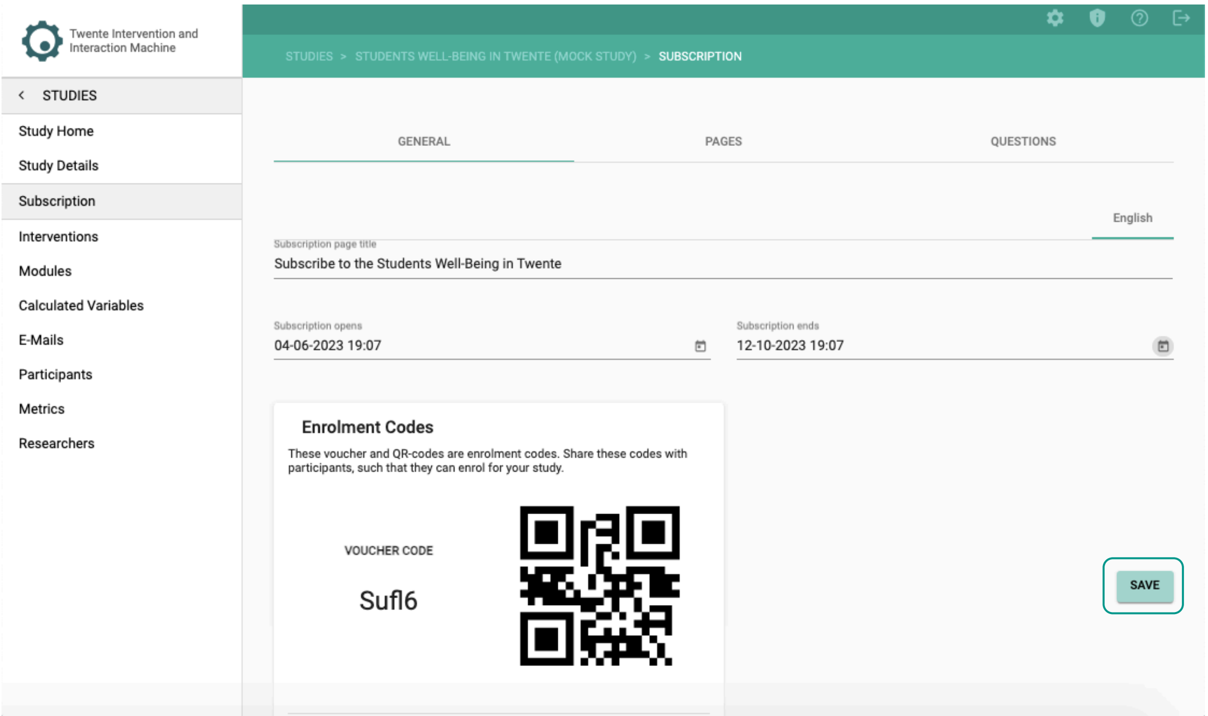
2. Edit the subscription title page (visible to participants).



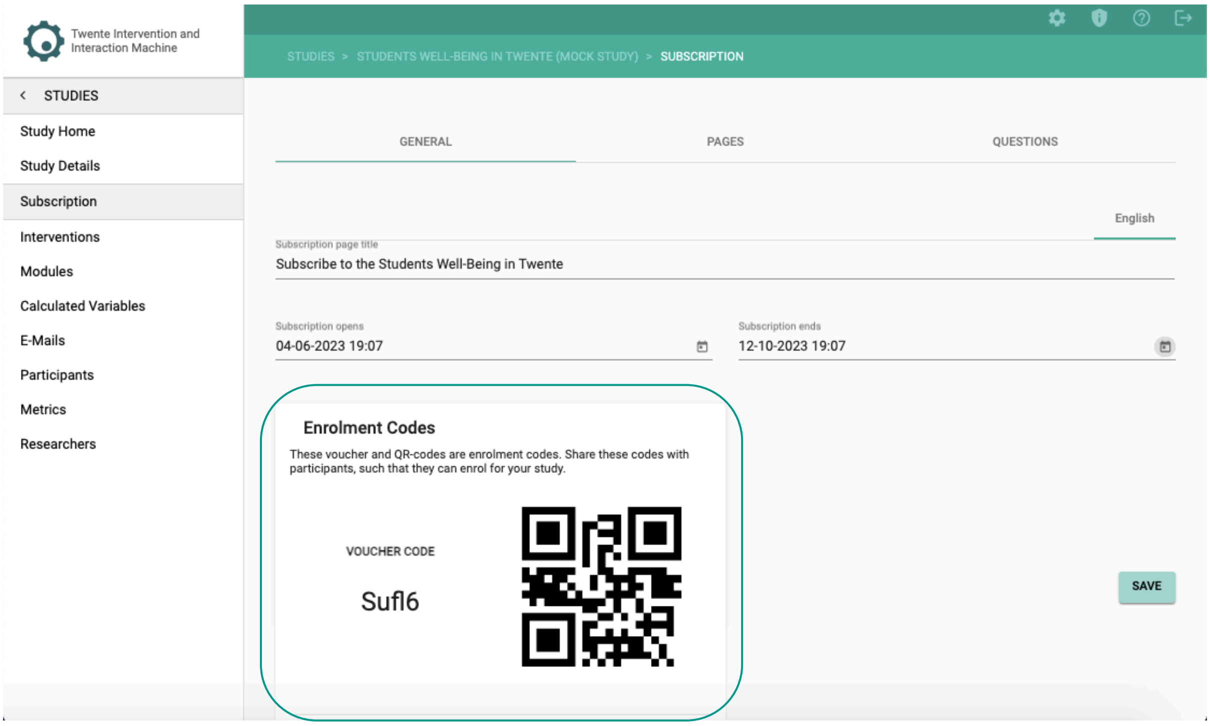
3. Edit the start and end of the subscription.



4. Click on – SAVE –.

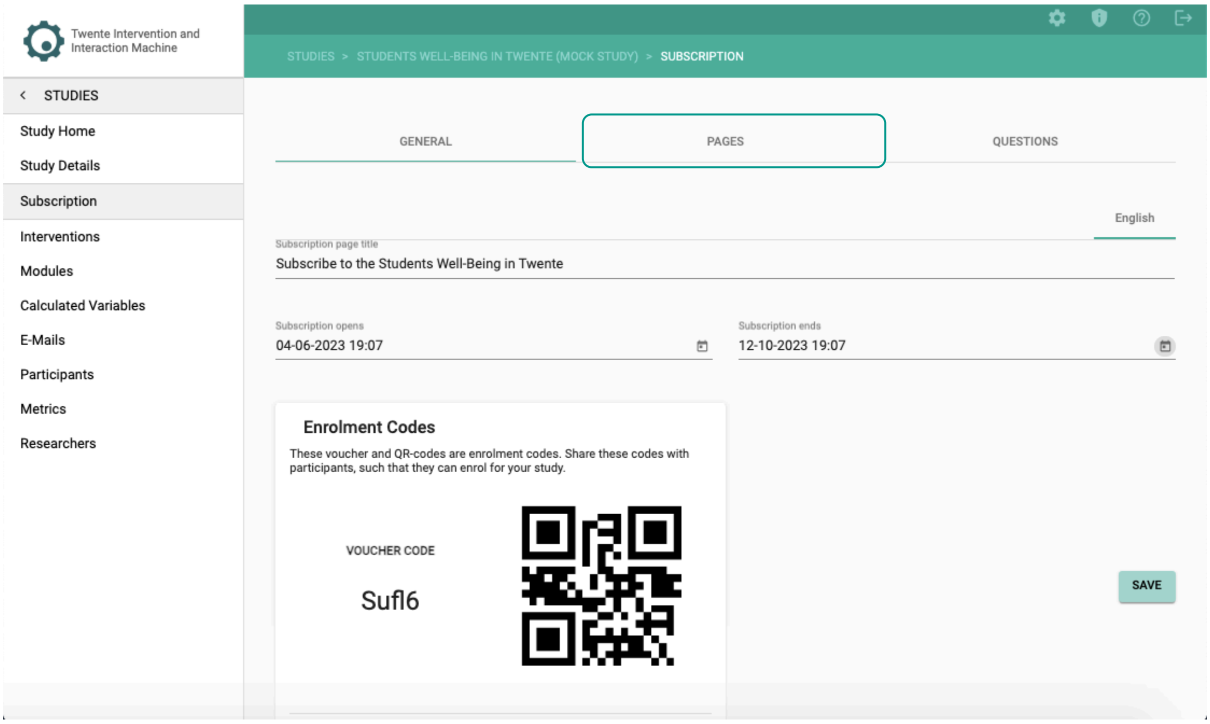


5. In the Enrollment Codes card, you can copy the voucher code or download the QR code image and share it with prospective participants of your study.



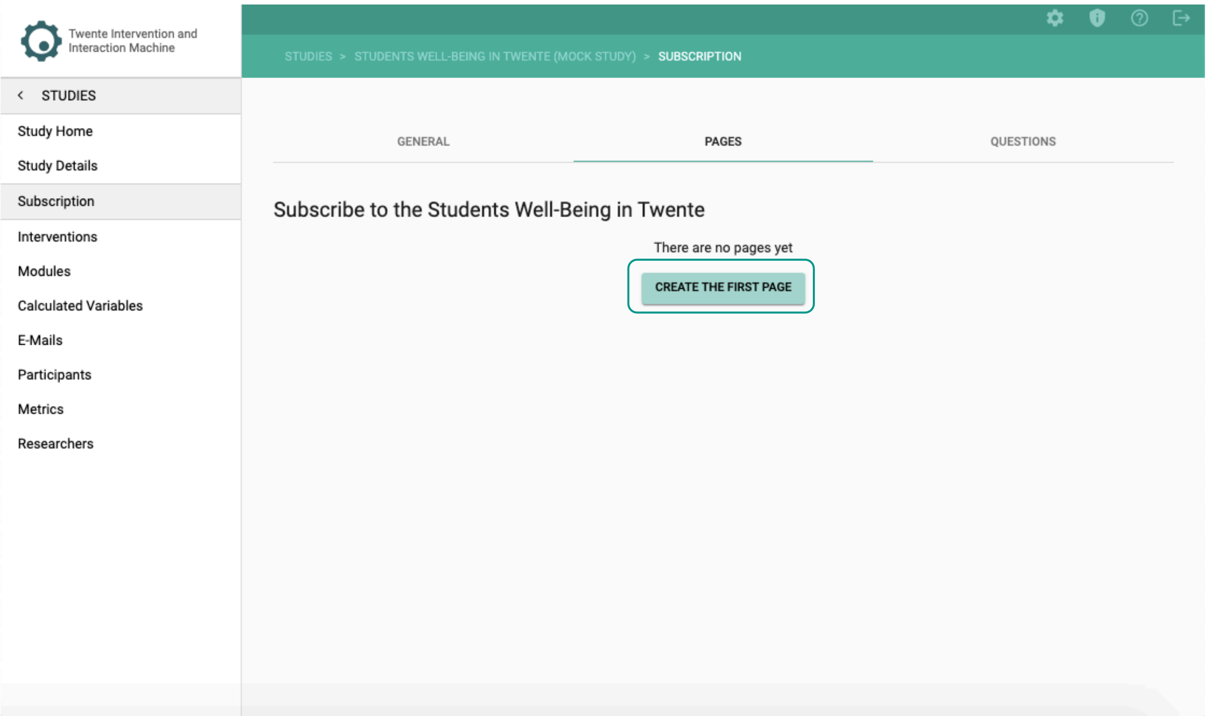
Before sharing it with your participants, always preview your study in the Study Home tab.

6. Click the – PAGES – tab.

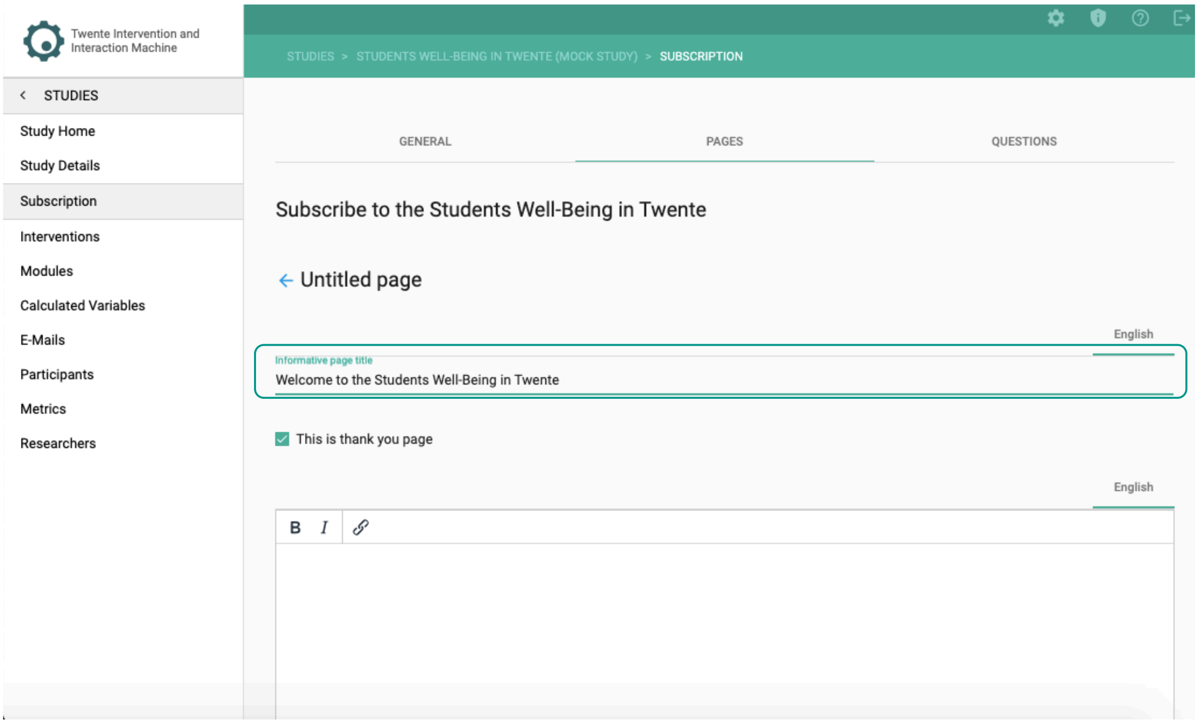


In the Pages tab you can create informative pages such as introductions, ethical disclosure statements or special instructions. The informative pages will be automatically shown to the participant after they have subscribed to your study.

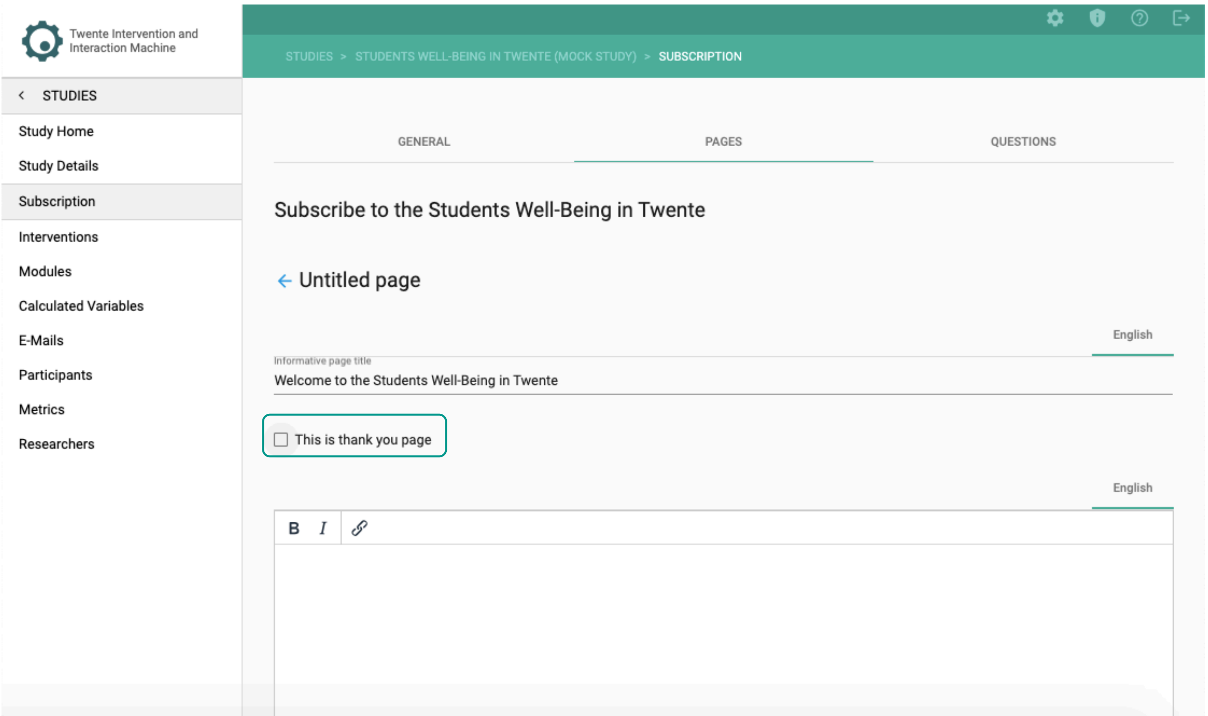
7. Click on – CREATE THE FIRST PAGE –.



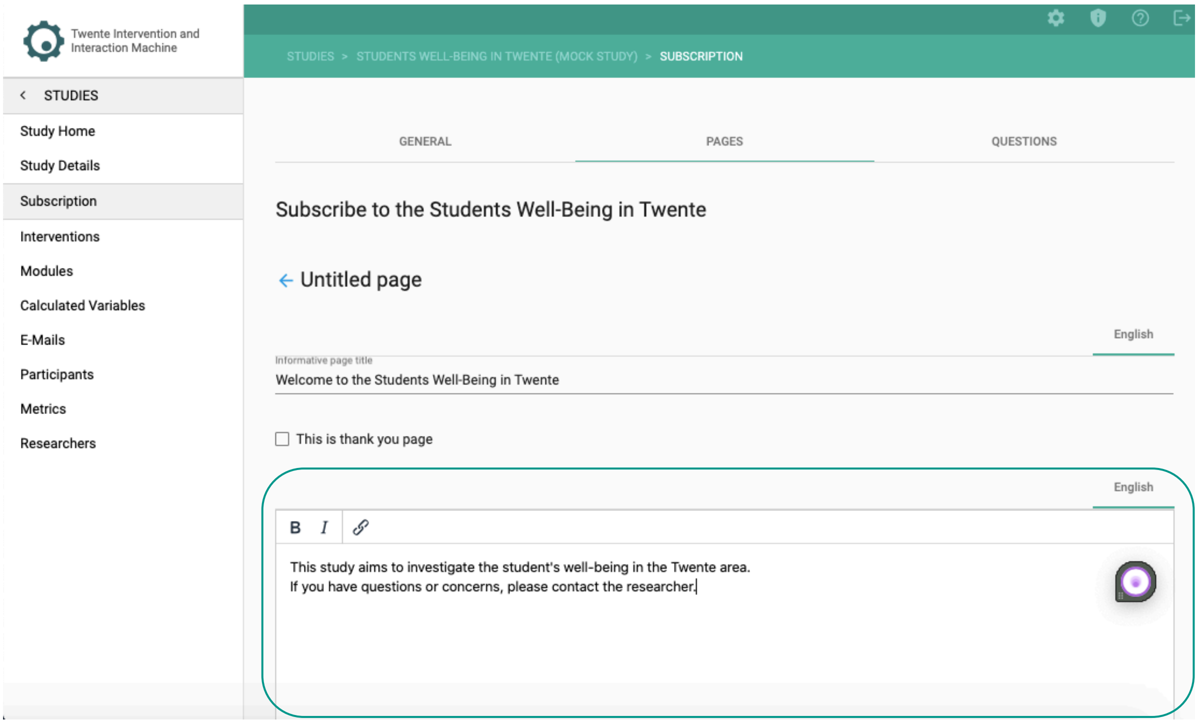
8. Fill in the title.



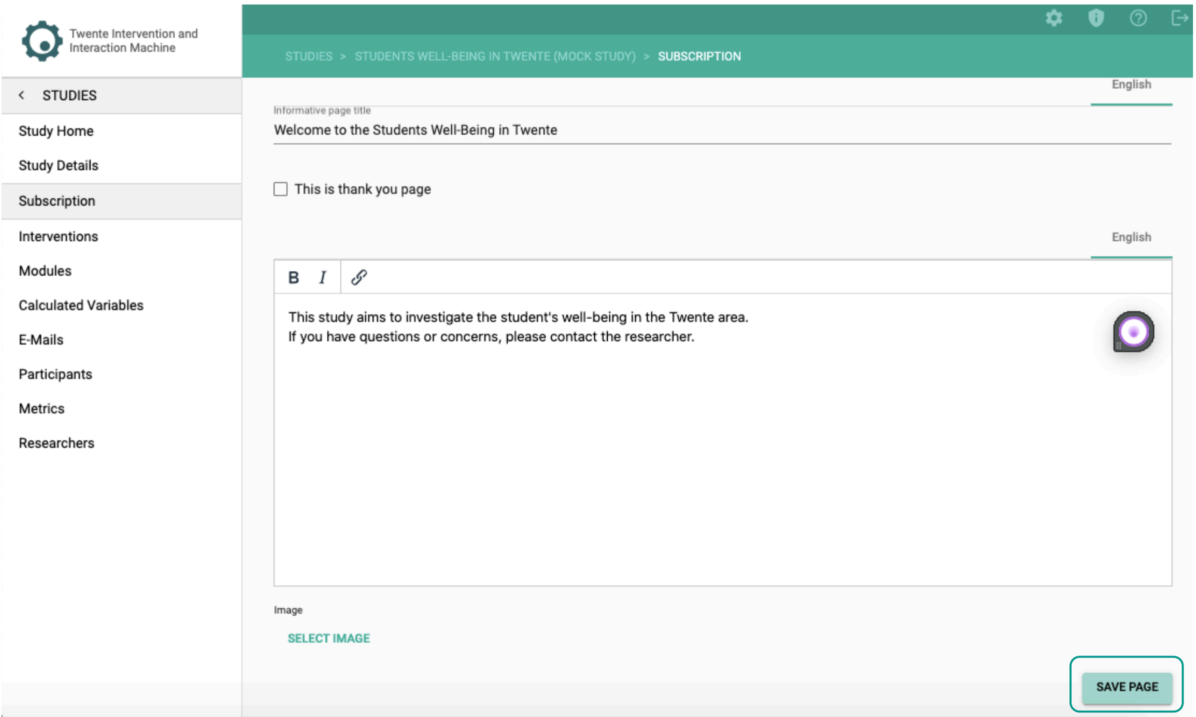
9. If you are creating a welcome page, unticked the box next to – THIS IS THANK YOU PAGE –. If it is a thank you page, leave ticked.



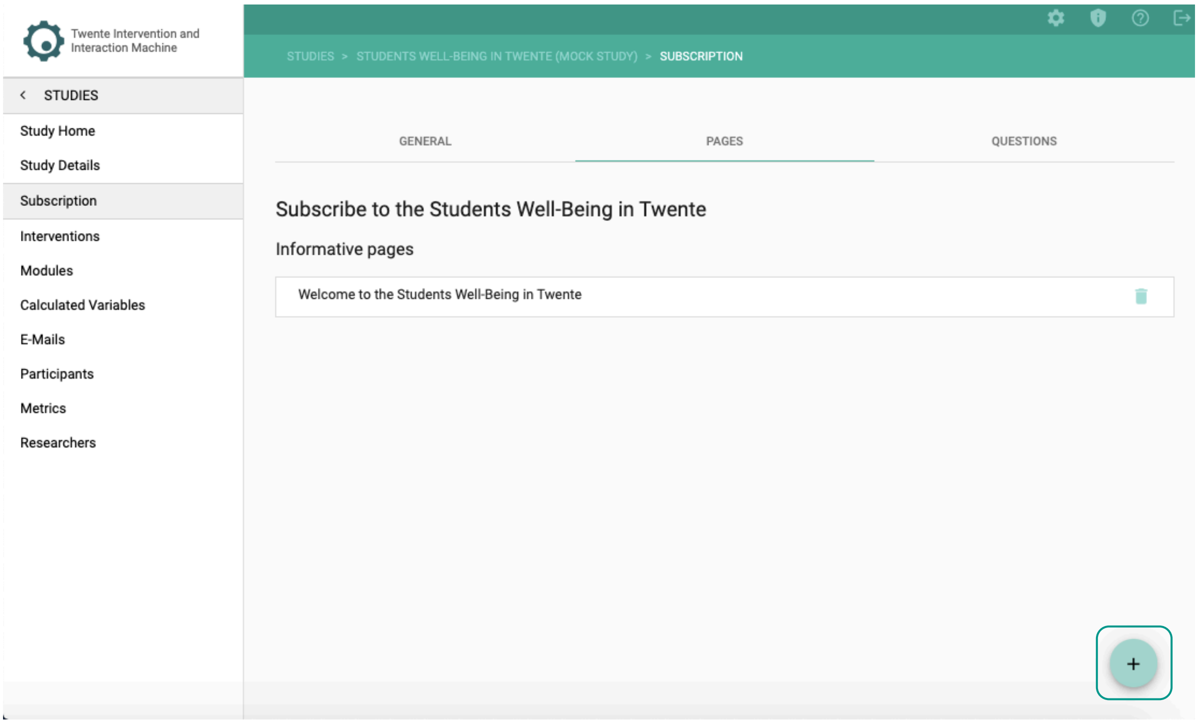
10. Fill in the body text.



11. Click on – SAVE PAGE –.

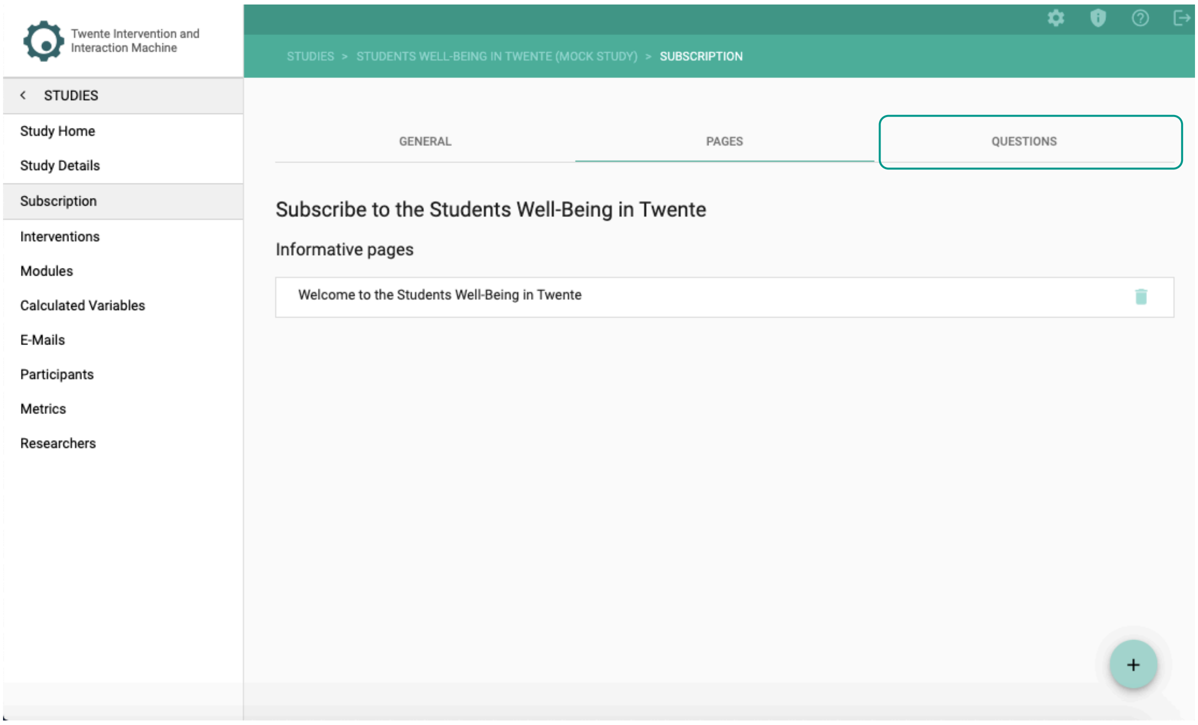


12. To create more informative pages just click on the – + – icon.

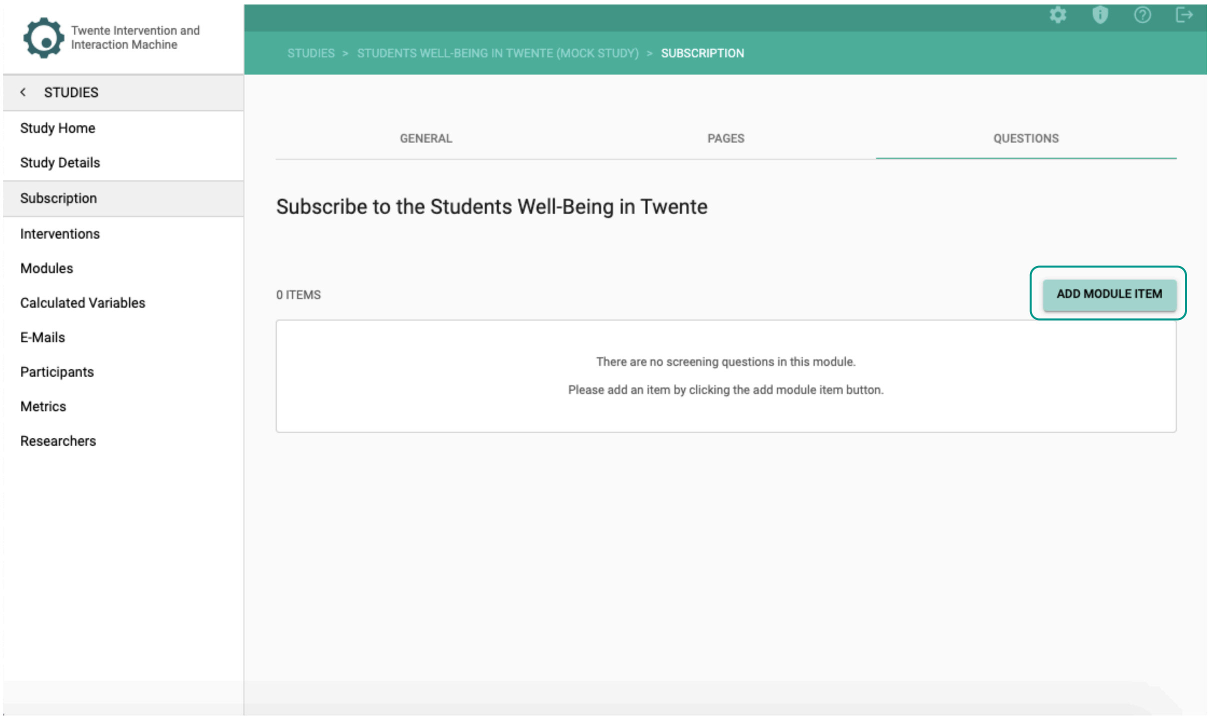


You can also create initial screening questions for your subscribed participants which you can use to assign them to the appropriate intervention.

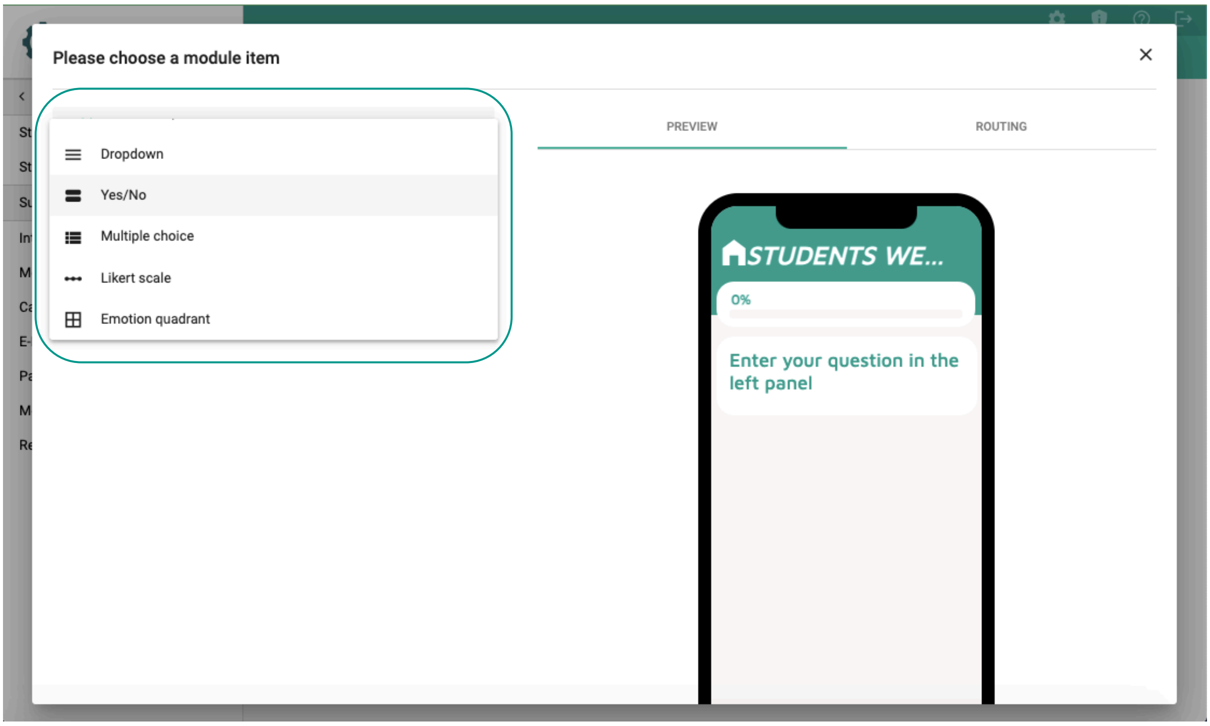
13. To create initial screening questions, click the – QUESTIONS – tab.



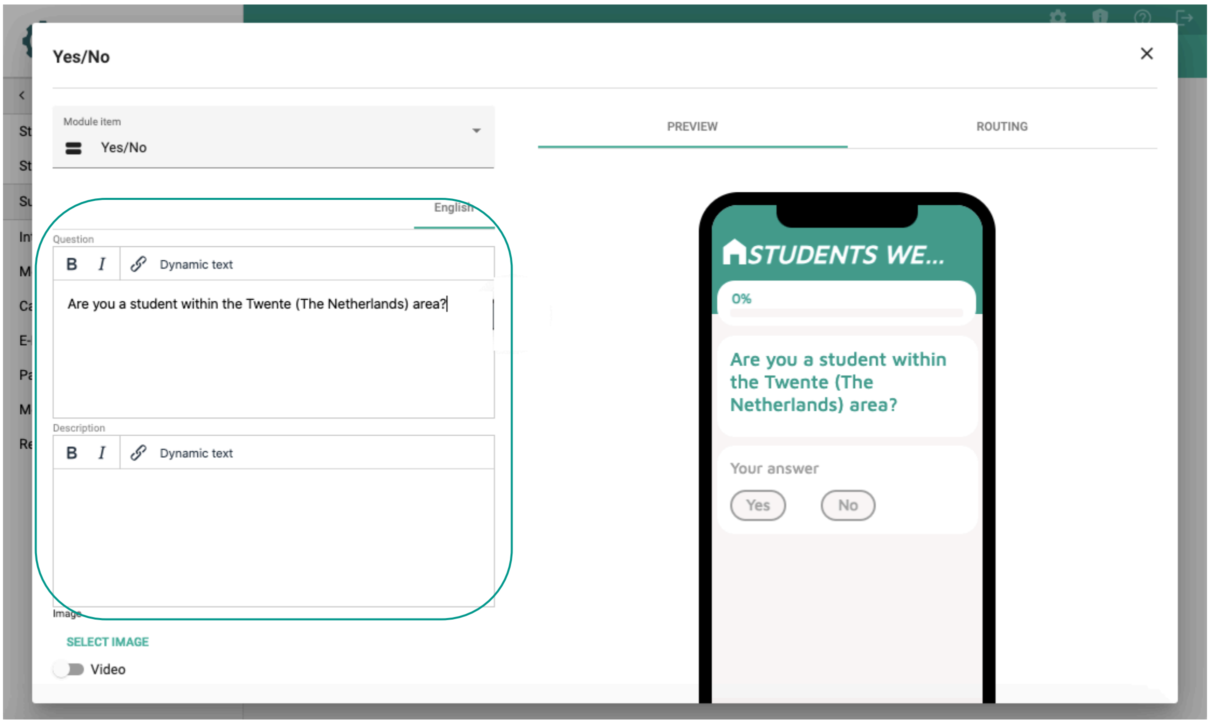
14. Click on – ADD MODULE ITEM –.



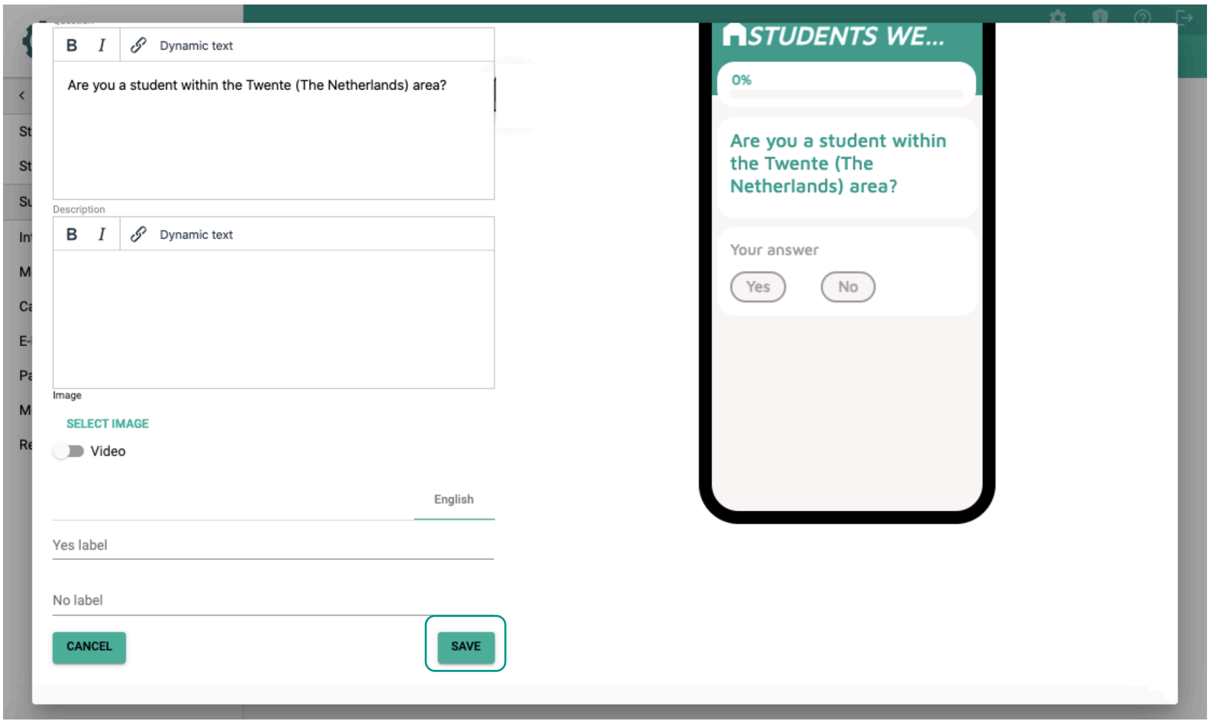
15. Select the type of questions you would like to include.



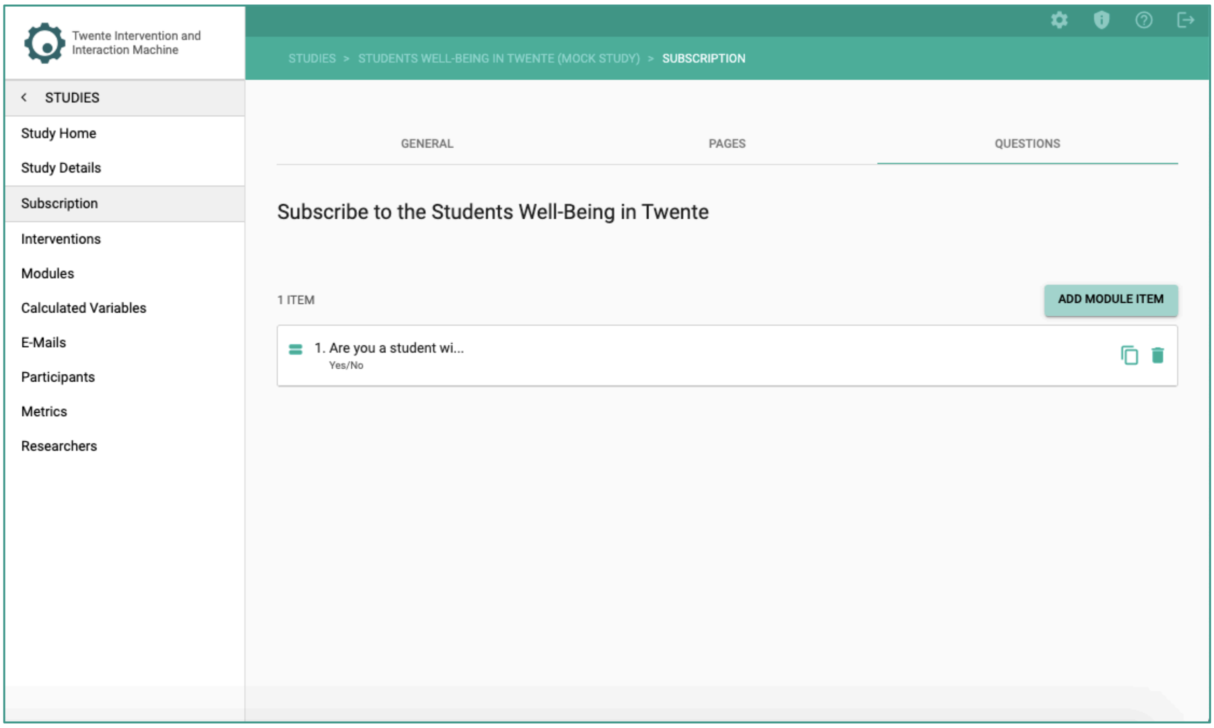
16. Fill in the details.



17. Click on – SAVE –.



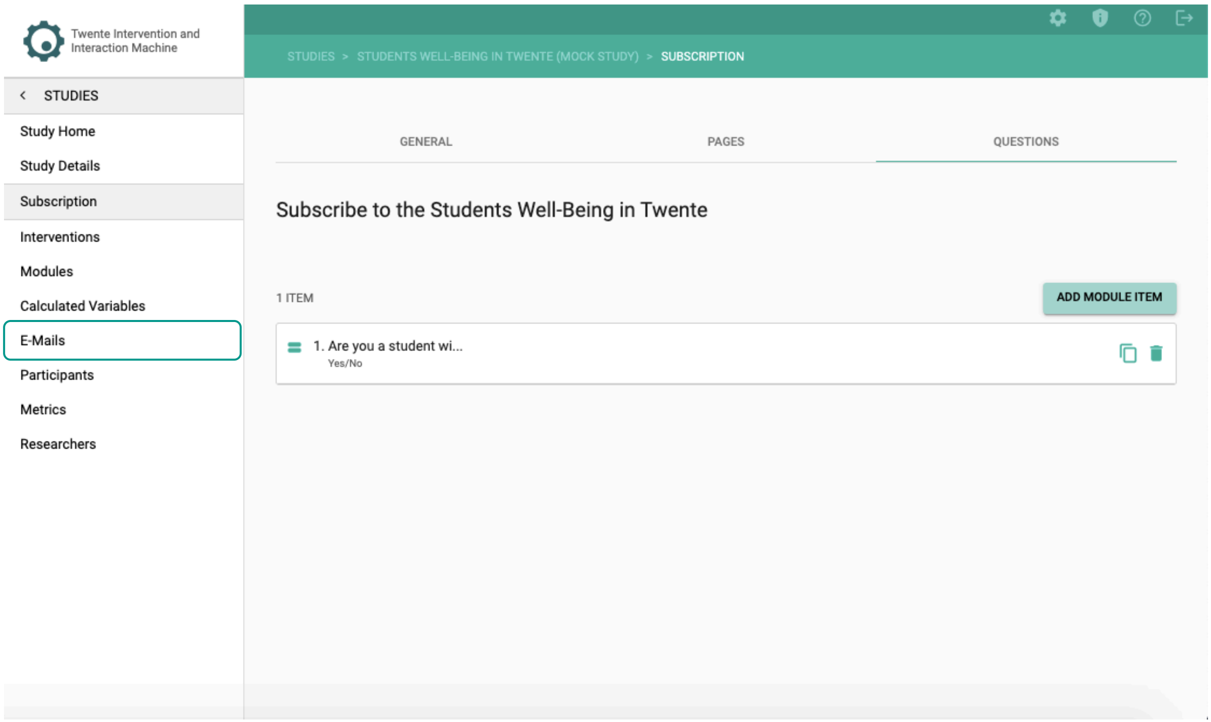
The following page will open:



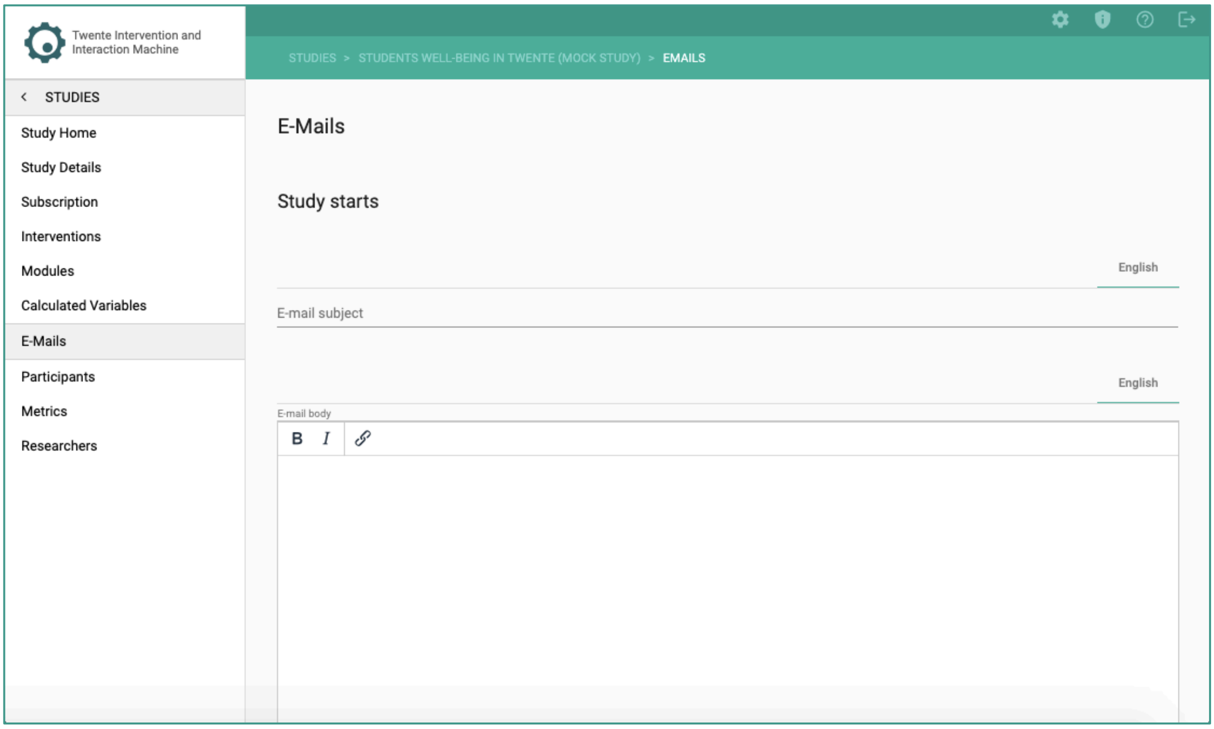
EDITING EMAIL PAGE (OPTIONAL)

The emails page will allow you to draft two different template emails for your participants either (1) when the study starts or (2) if they are rejected from the study.

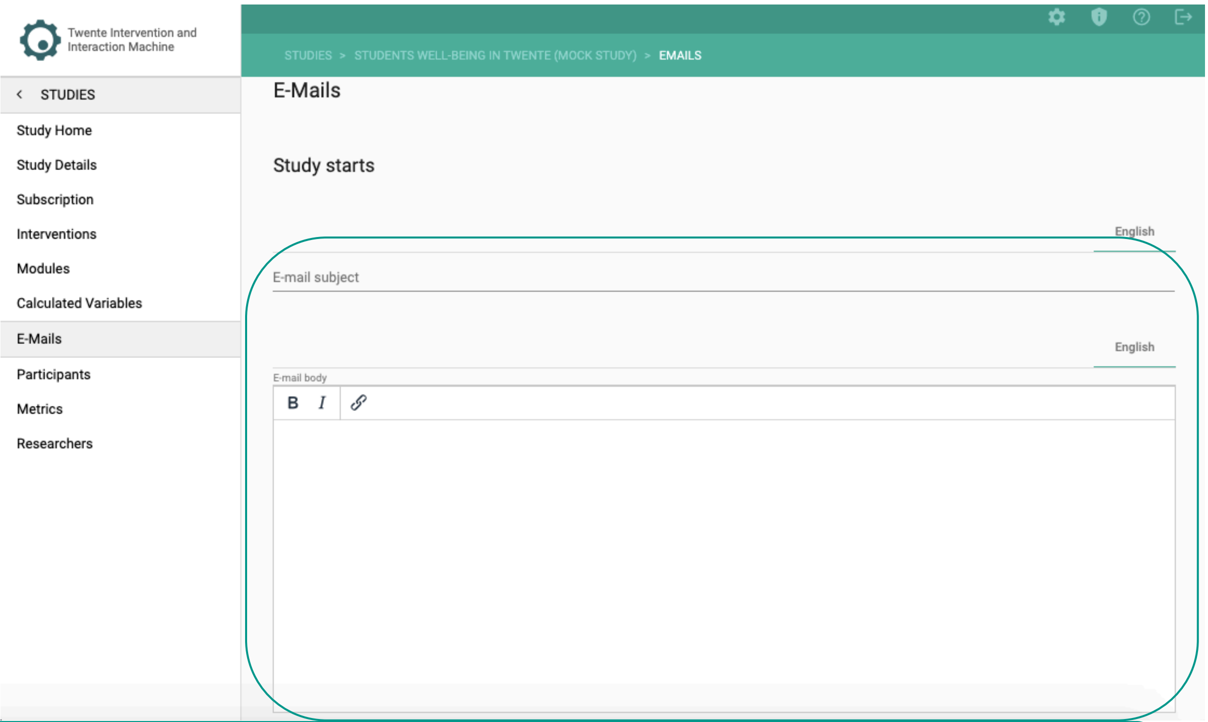
1. On the sidebar, click on the – E-MAILS – page.



The following page will open:

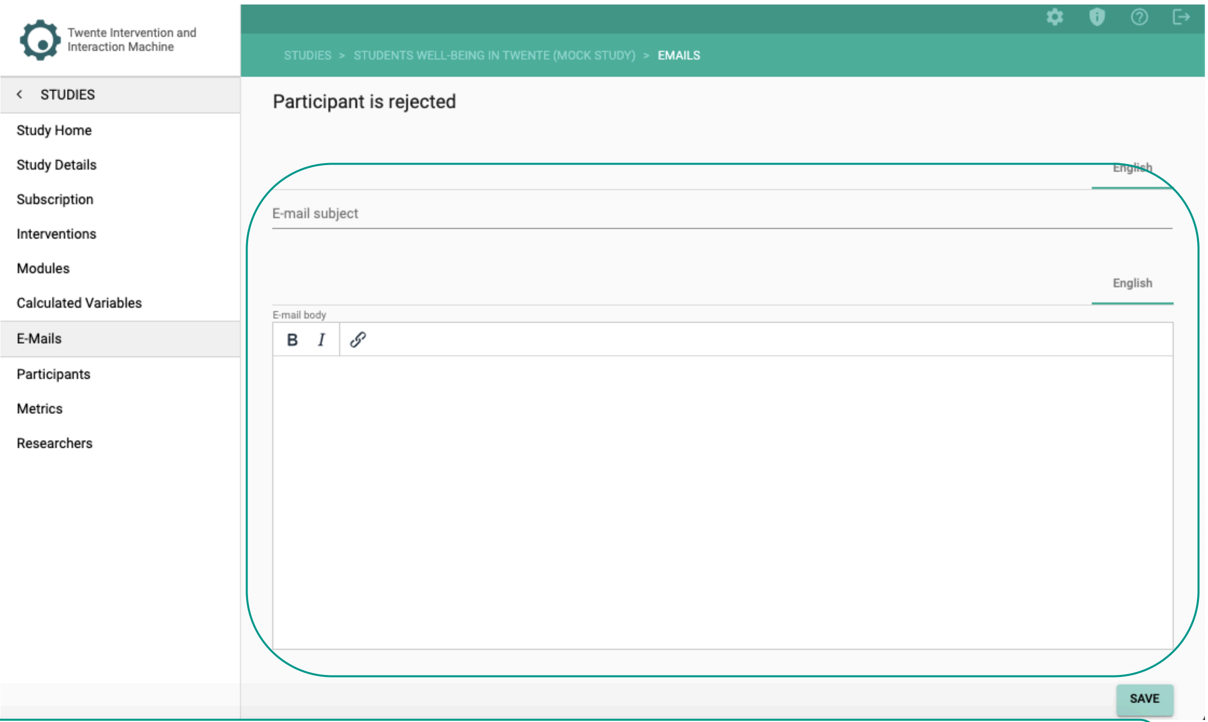


2. Fill in the study starts details.



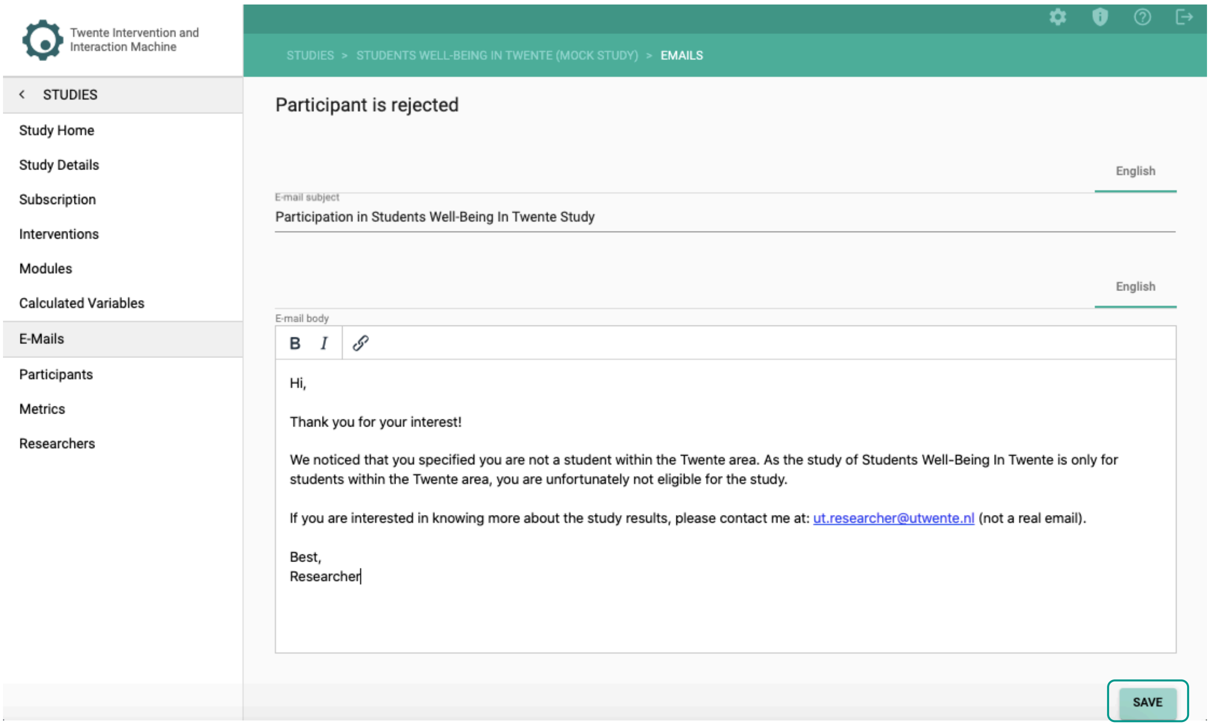
The study starts e-mail will be sent to your participants once you have assigned them to an intervention.

3. Fill in the participant is rejected e-mail details.



The participant is rejected e-mail will be sent immediately after your participant has been rejected to take part in your study.

4. Click on – SAVE –.

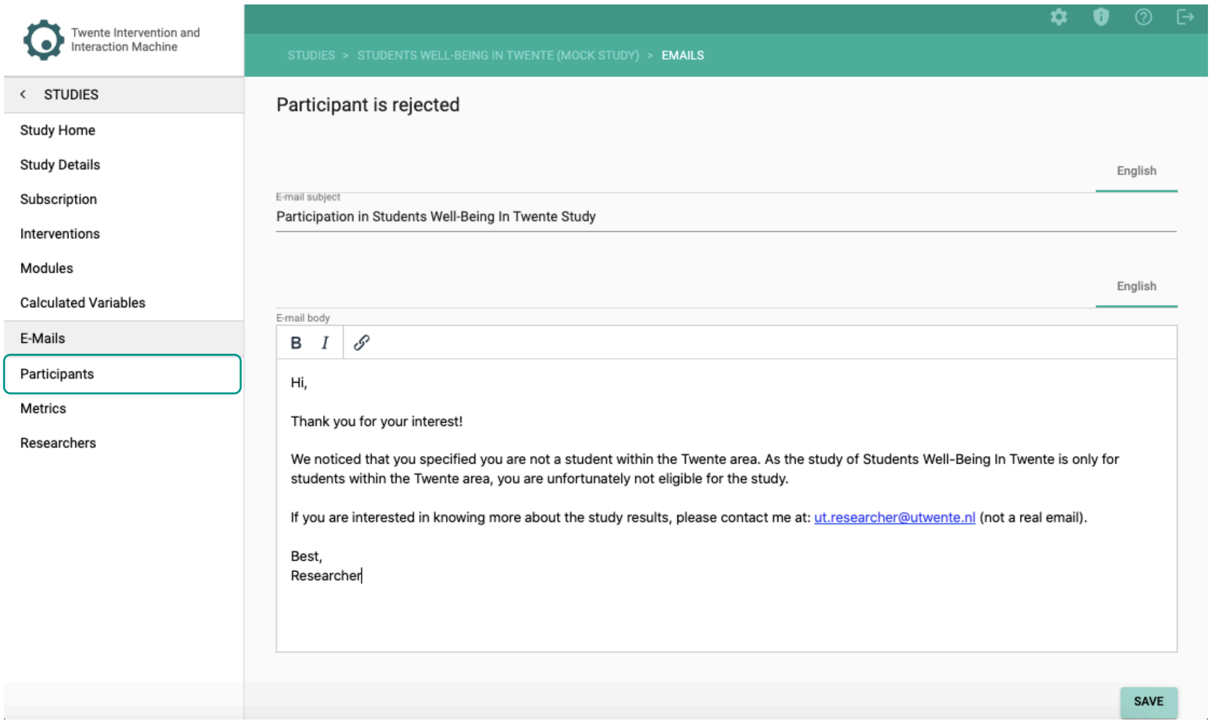


Both template emails are sent by the BMS Lab email account, yet the participant will see it as if the e-mail had been sent by the researcher who created the study. This will allow the participant to reply to the researcher.

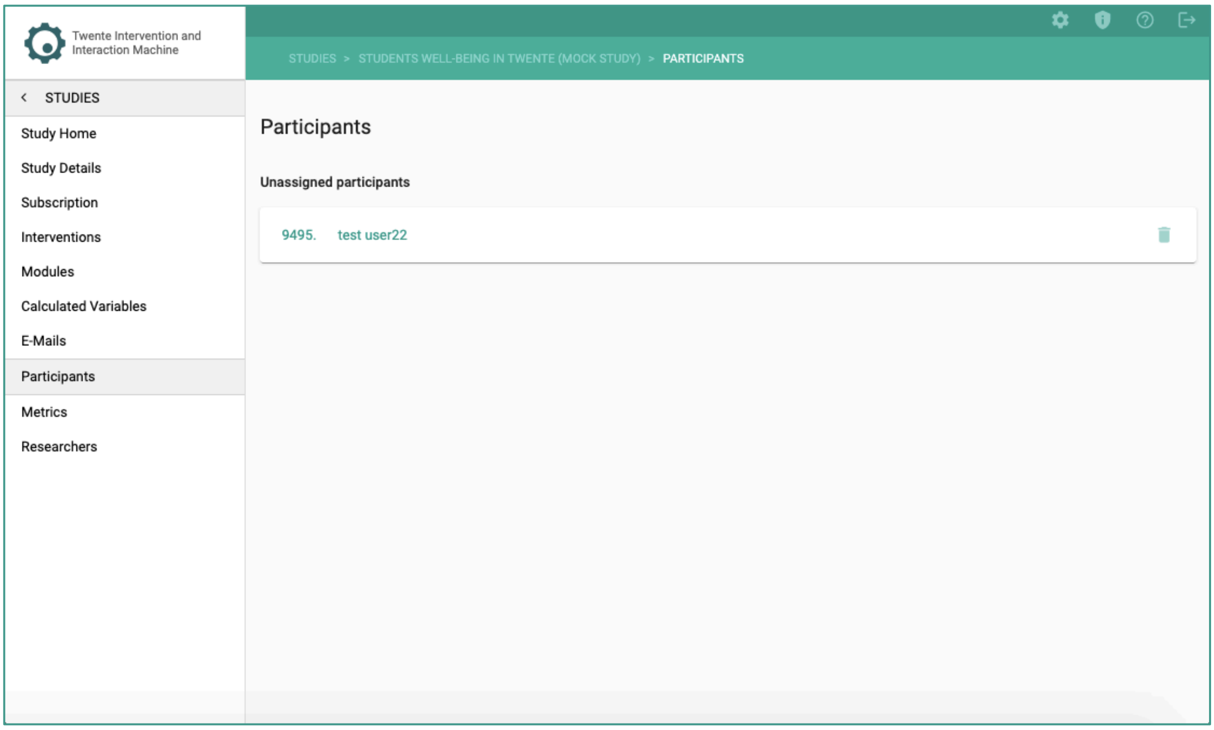
EDITING PARTICIPANT'S PAGE

The Participant's page enables you to check the participant's details and assign or reject a participant.

1. On the sidebar, click on the – PARTICIPANTS – page.

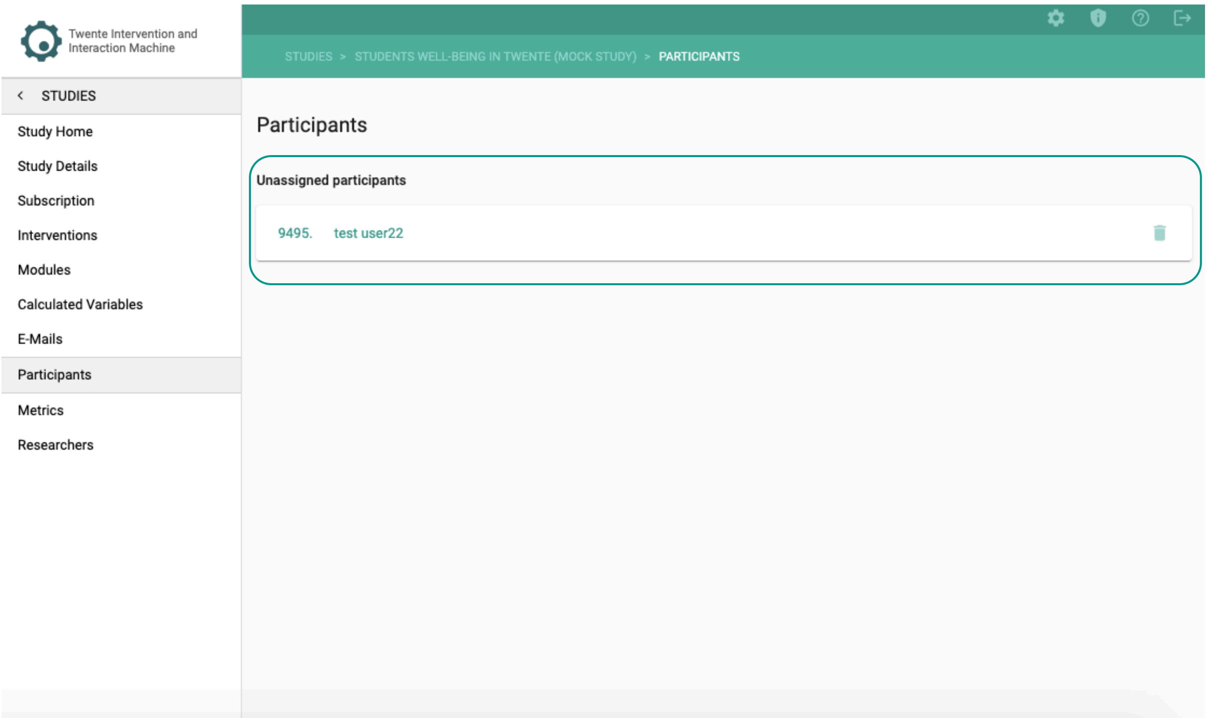


Once participants subscribed to your study, the Participants page will show like this:

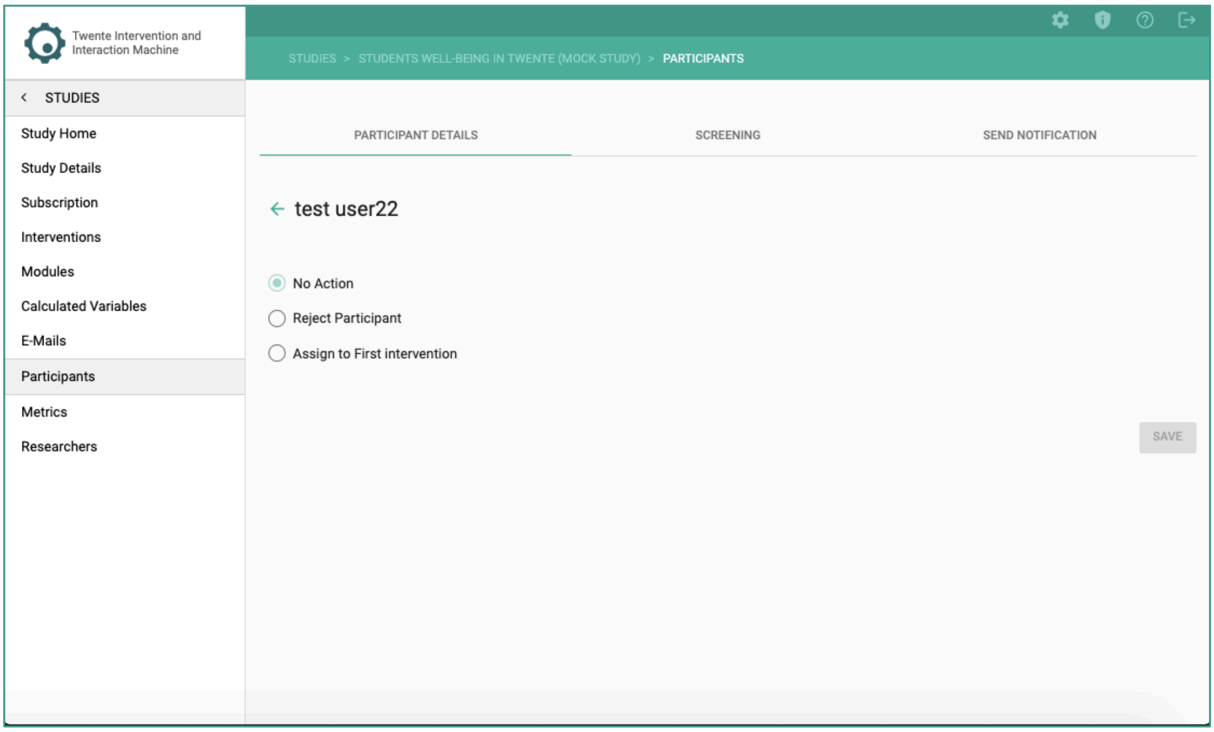


The participant's page displays a list of subscribed and unsubscribed participants. Participants can unsubscribe from your study through the TIIM app and can only do so after you have assigned them to an intervention.

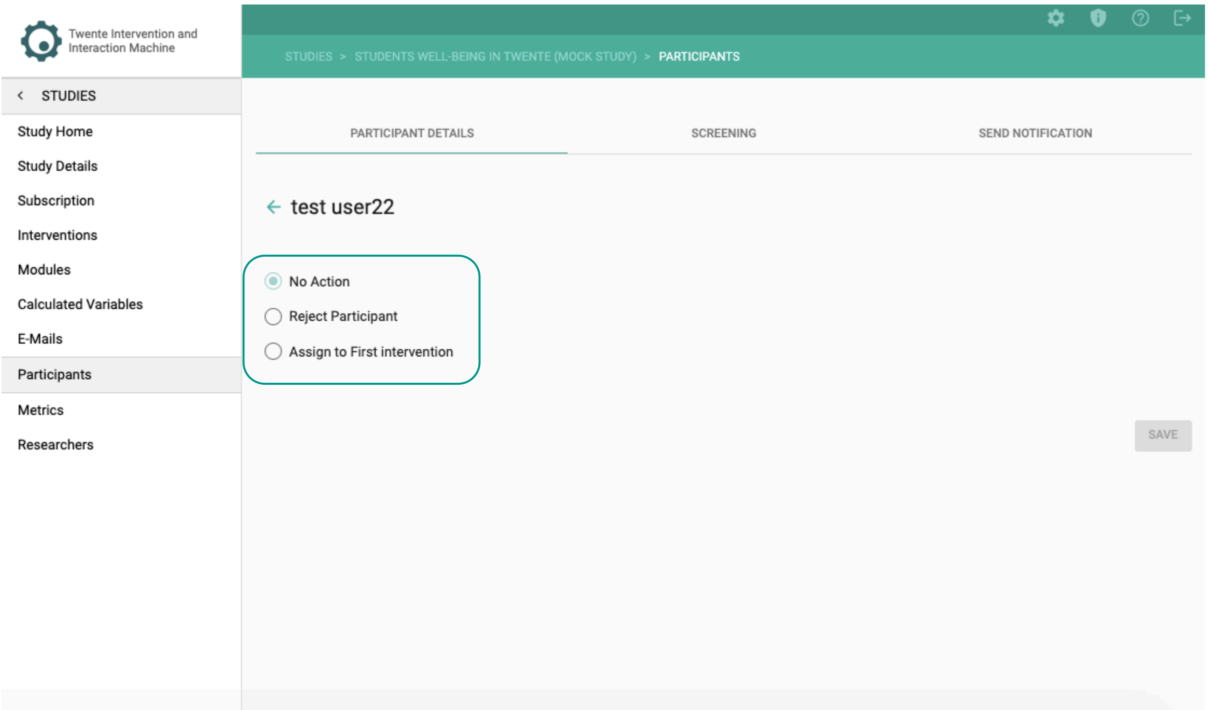
2. Click on the unassigned participants.



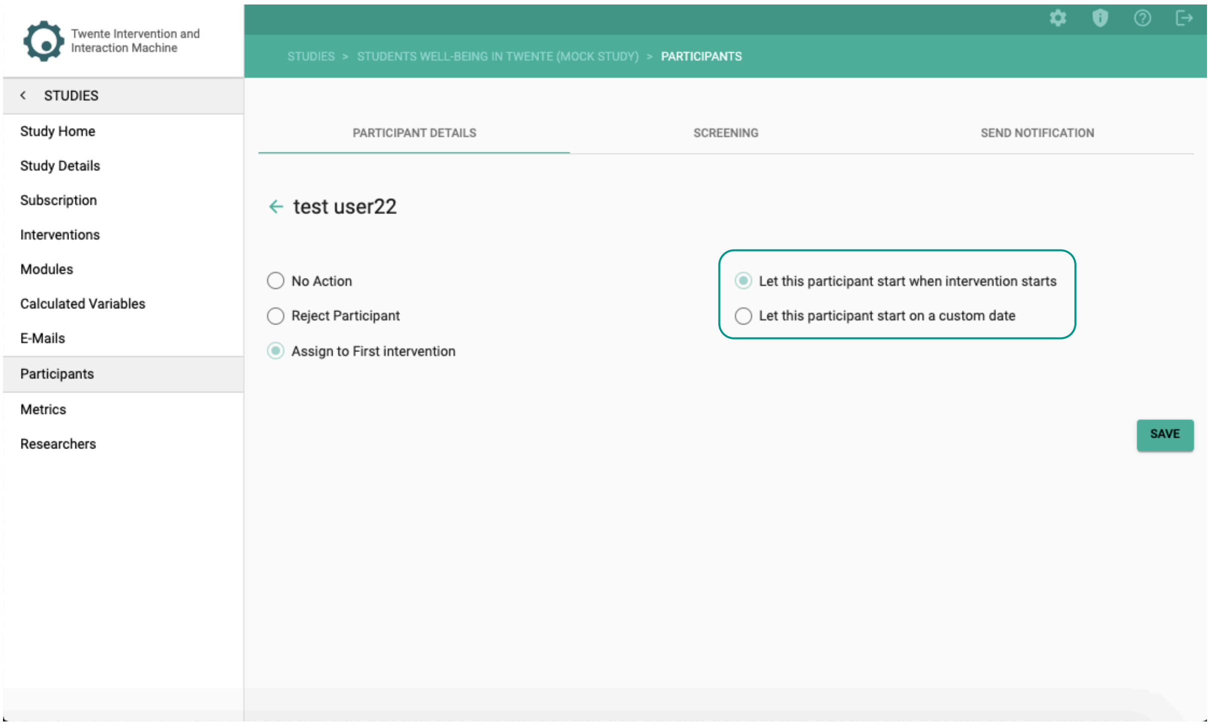
The following page showing the PARTICIPANT DETAILS Tab, will open:



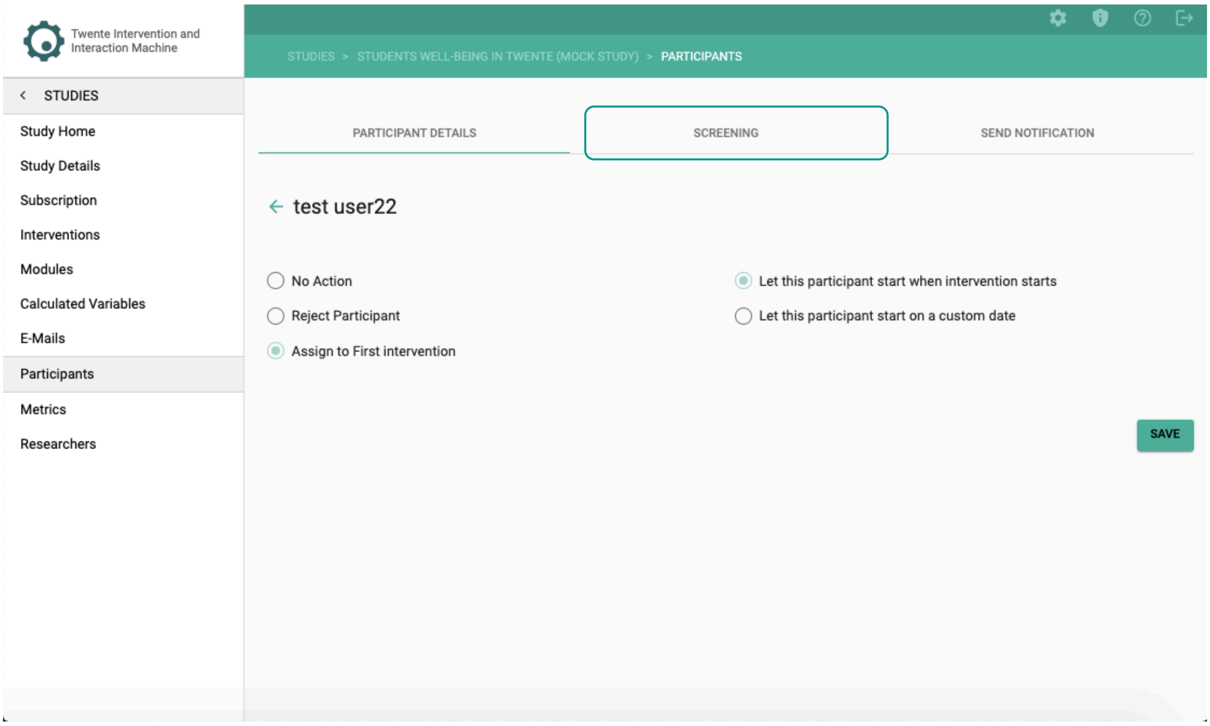
3. Assign the participant to a particular Intervention or reject the prospective participant.



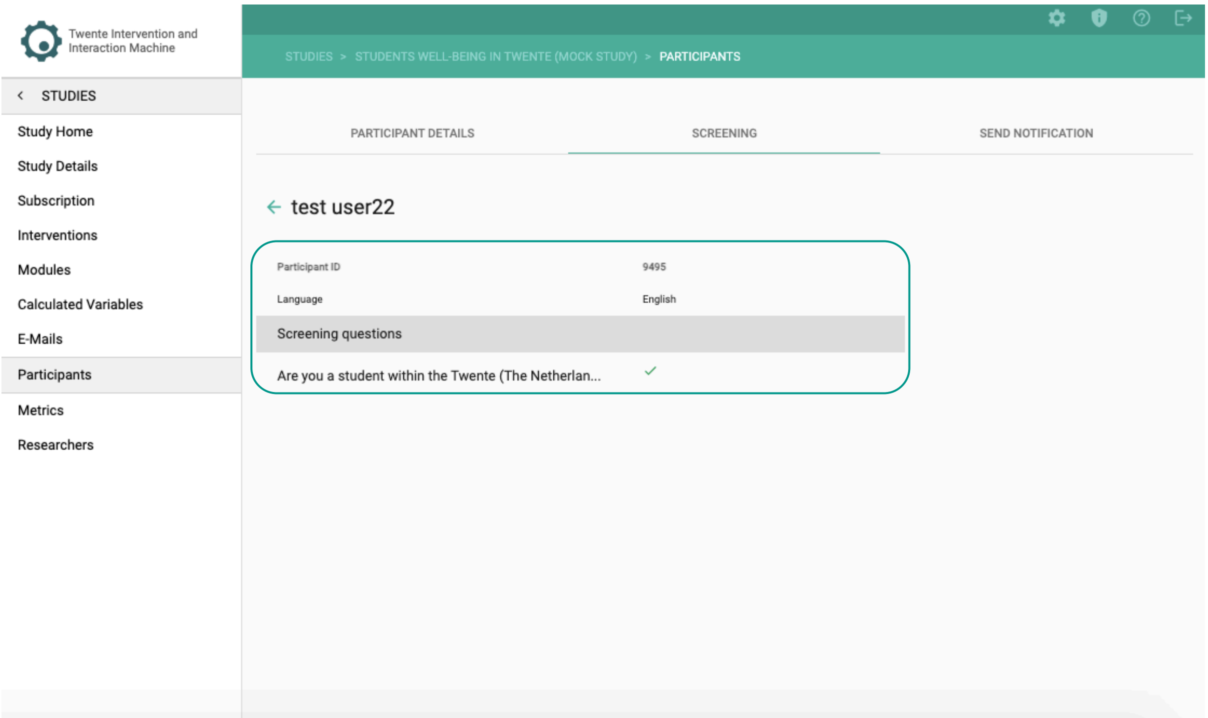
4. When you assign the participant to an intervention, choose to let the participant start when the intervention starts or on a customer date and time.



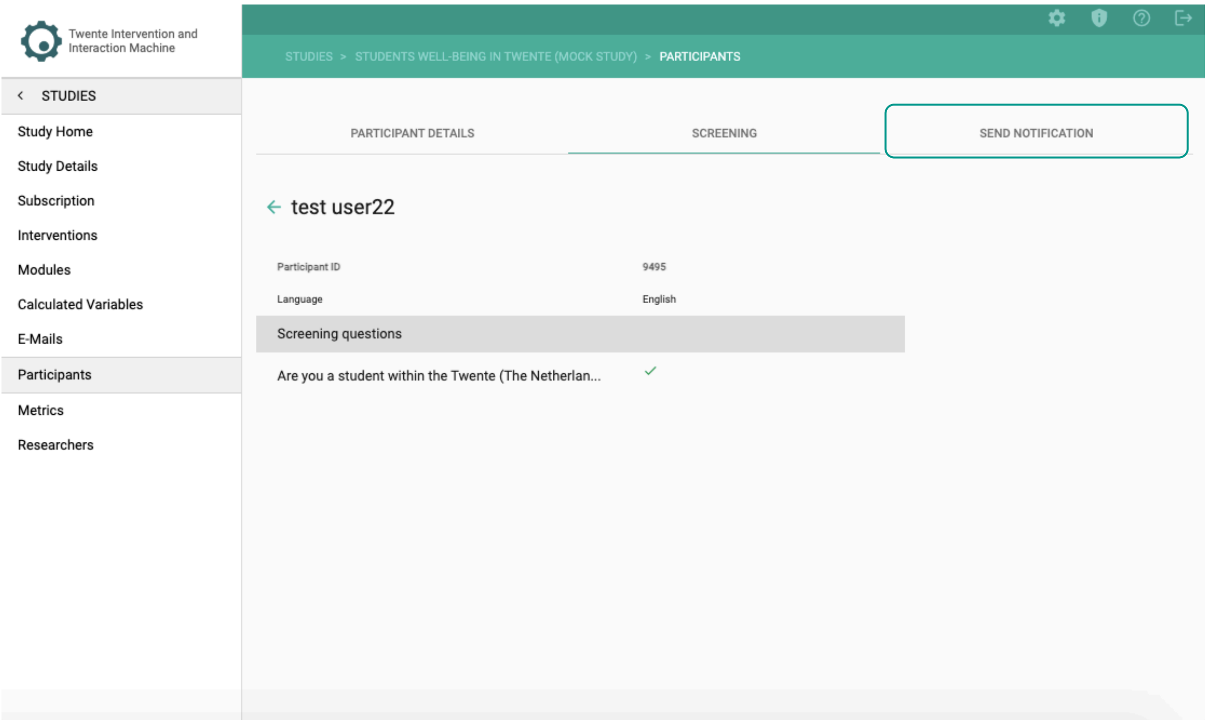
5. Click on – SCREENING –.



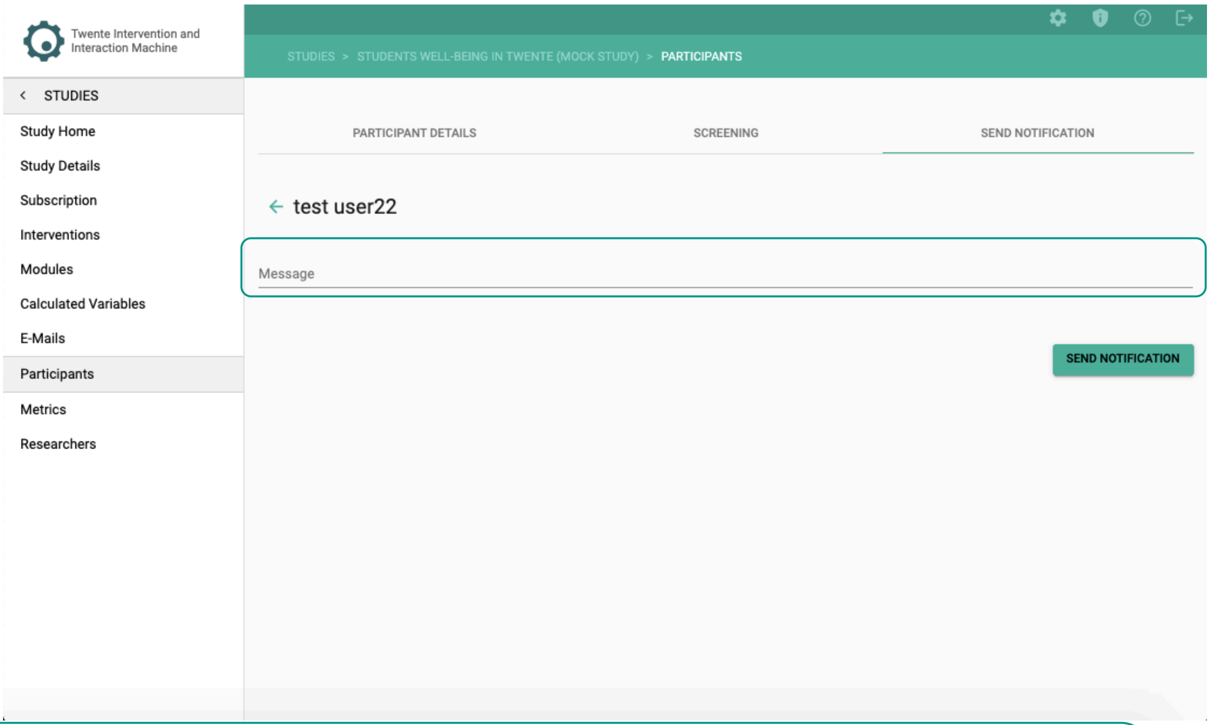
6. The SCREENING tab will open showing the participant's answers to the questions when they were subscribing to your study.



7. Click on – SEND NOTIFICATION –.



8. in the Send Notification tab, send specific push notifications to your participant's smartphone. The push notification can work as a reminder and call to action.



The participant needs to have the TIIM application installed on their smartphone, logged in on their account, and the push notifications enabled in the TIIM application settings.

INSTRUCTING FIRST-TIME PARTICIPANTS

For your participants to be able to fill in your study you will need to instruct them on how to download and use the TIIM app.

You can share the **Participants** instructional video through the following links:

- English: https://youtu.be/LgUXVO8iUK4?si=Zgc4mO8Z7rXZRnY6
- Dutch: https://youtu.be/VEpPzLWGrLs?si=ZirOF7MH0Botw0MZ

Alternatively, you can share the following text:

1. **Downloading TIIM for Android**
   i. Go to the play store for android.
   ii. Type in the search bar "TIIM".
   iii. Select the TIIM app.
   iv. When the download menu opens, select – DOWNLOAD –.
   v. After downloading has finished you can open the app.

2. **Downloading TIIM for iOS**
   i. Go to the App store for iOS.
   ii. Type in the search bar "TIIM".
   iii. Select on the TIIM app.
   iv. Select – DOWNLOAD –.
   v. Accept the download with your apple ID.
   vi. After downloading has finished you can open the app.

The app is free, so don't worry about the mention for payment.

3. **Creating an Account**
   i. The app will ask to login. Select – CREATE AN ACCOUNT –.
   ii. Fill in your details.
   iii. Then, press – CREATE ACCOUNT –.
   iv. To log in just fill in your email address and password.

4. **Subscribing to the Study**
    i. To subscribe to a study, select the QR code icon on the right side of your screen.
    ii. You can type the voucher code.
    iii. Then, press – SUBMIT –.

OR

    i. Scan the QR code that you have received from the researcher.
    ii. Both methods will send you to a subscription page.
    iii. Select – CONTINUE –.
    iv. Here you can also confirm if you would like to subscribe with the mentioned email.
    v. Press – CONTINUE –.
    vi. The Researcher will contact you when you can start the study.

5. **Editing Settings**
    i. In the app on the left select – SETTINGS –.
    ii. Allow for push, email notifications, and data collection from Healthkit.
    iii. To unsubscribe from a study, select – UNSUBSCRIBE – next to the study.
    iv. If you want to delete your data, please contact the researcher or ask the researcher for your User ID and then contact the BMS Lab dashboard support.
    v. Press – SAVE –.

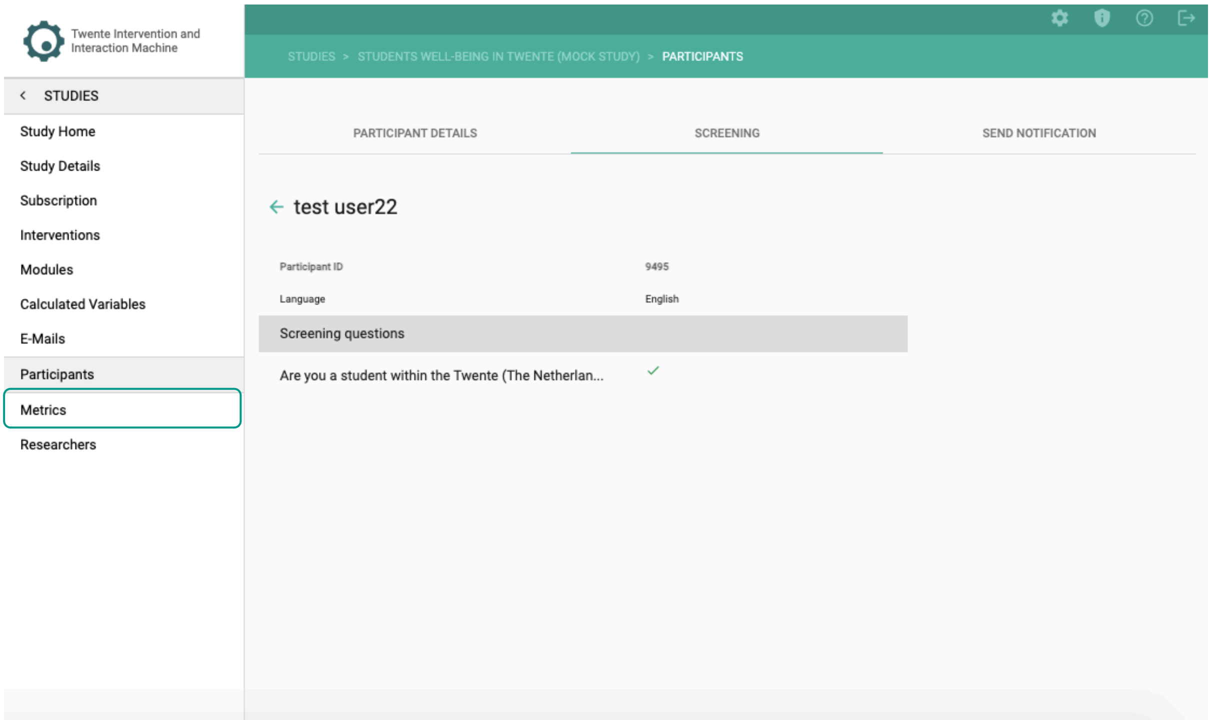
DATA METRICS AND EXPORT

TIIM's dashboard enables you to view, download, and import the **Data Metrics** of participants to Excel and SPSS. The **Data Metrics** consists of your participant's responses and information provided during their answering of your modules. You can see the **Data Metrics** instructional video through the following link:

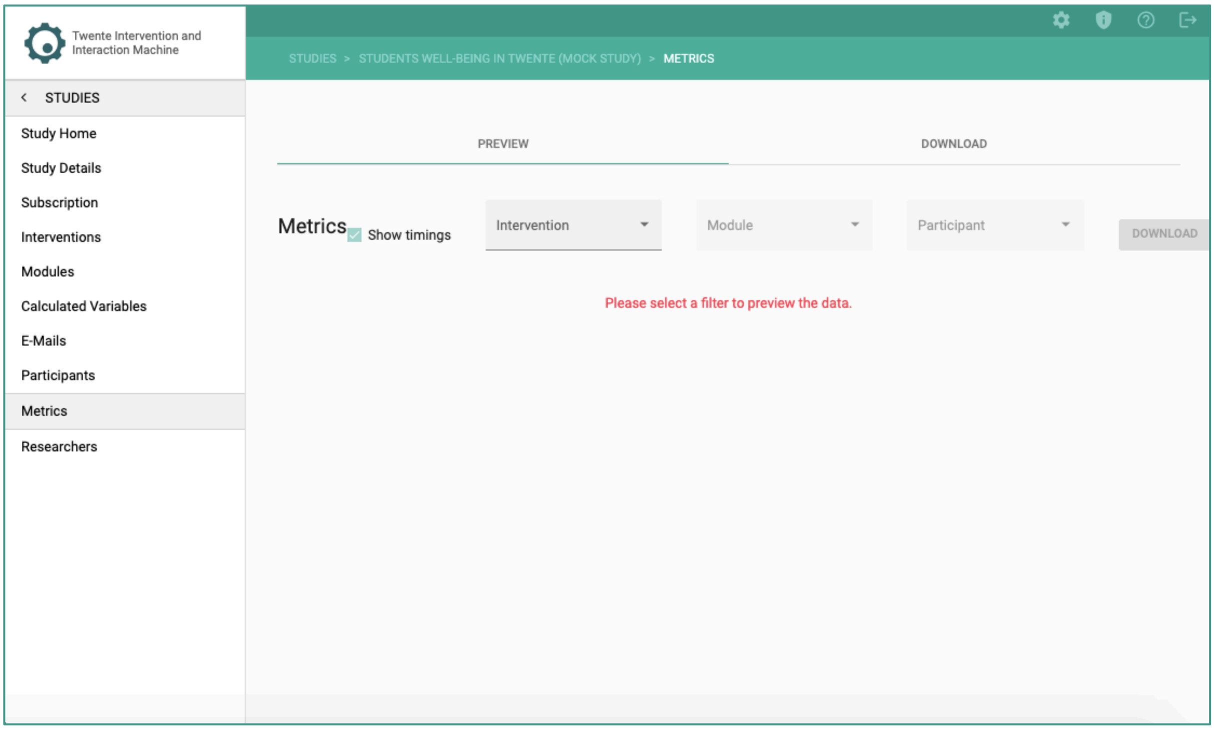
https://youtu.be/n75HW-6sOh4?si=_0EAbWuryZHOXJxP

VIEWING YOUR DATA METRICS

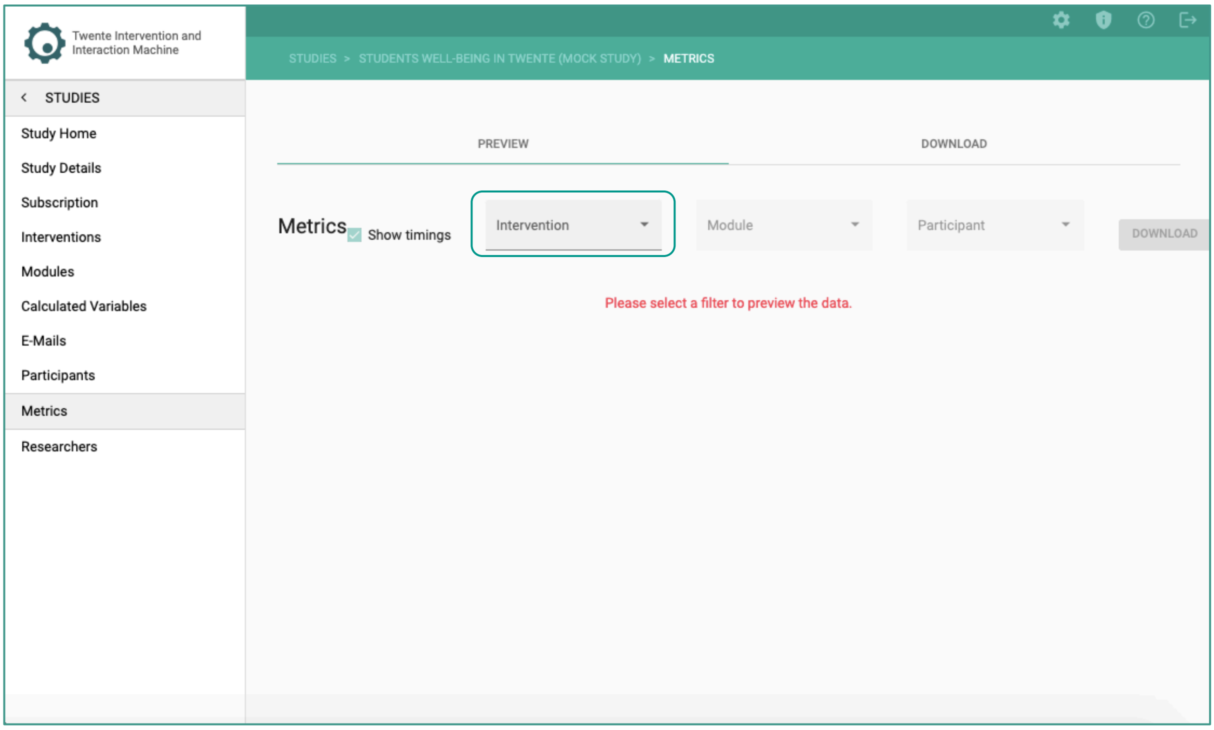
1. On the sidebar, click on the – METRICS – page.



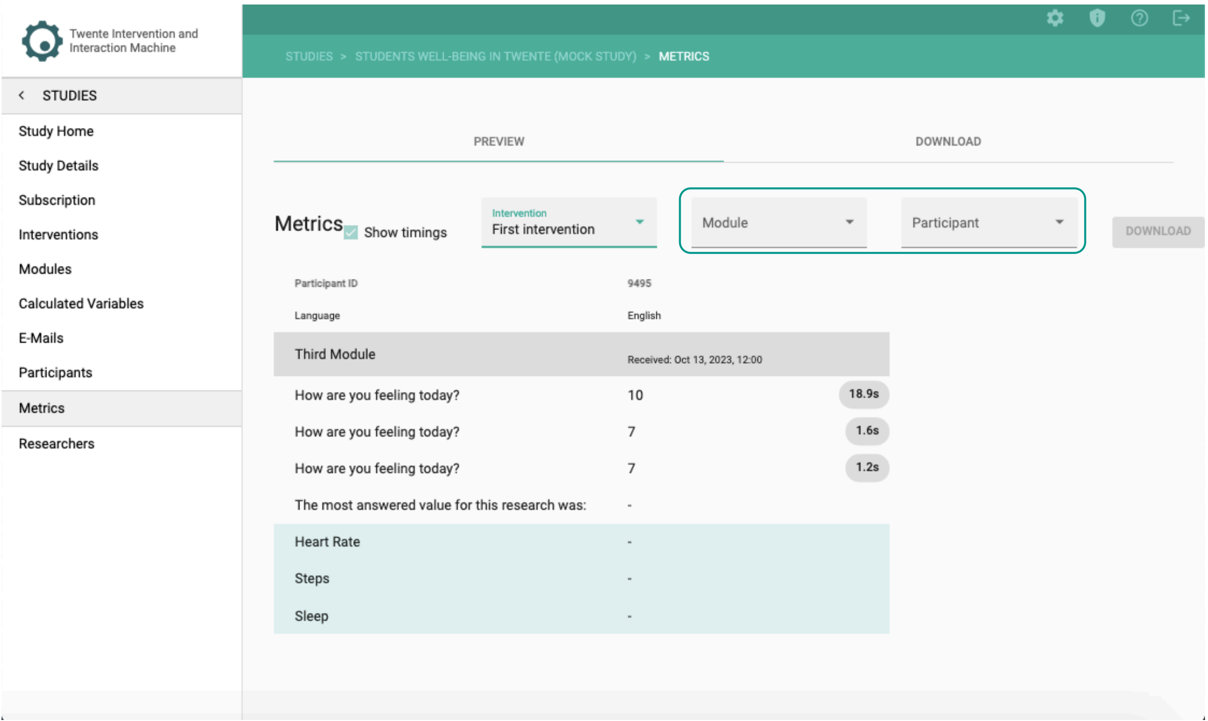
The following page will open:



2. Select – INTERVENTION –.

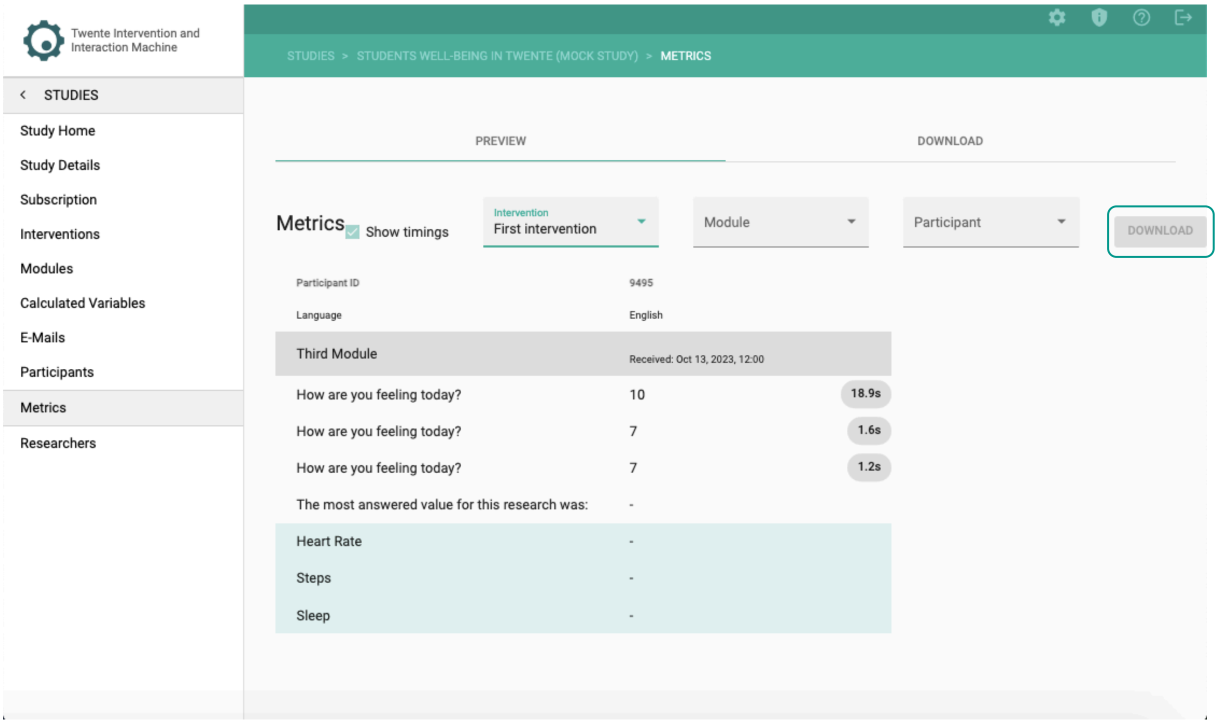


3. Filter data further by selecting the – MODULE – and/or – PARTICIPANT –.



EXPORTING YOUR DATA METRICS

1. To download data metrics based on the selected filters, click on – DOWNLOAD – next to the Participant field.

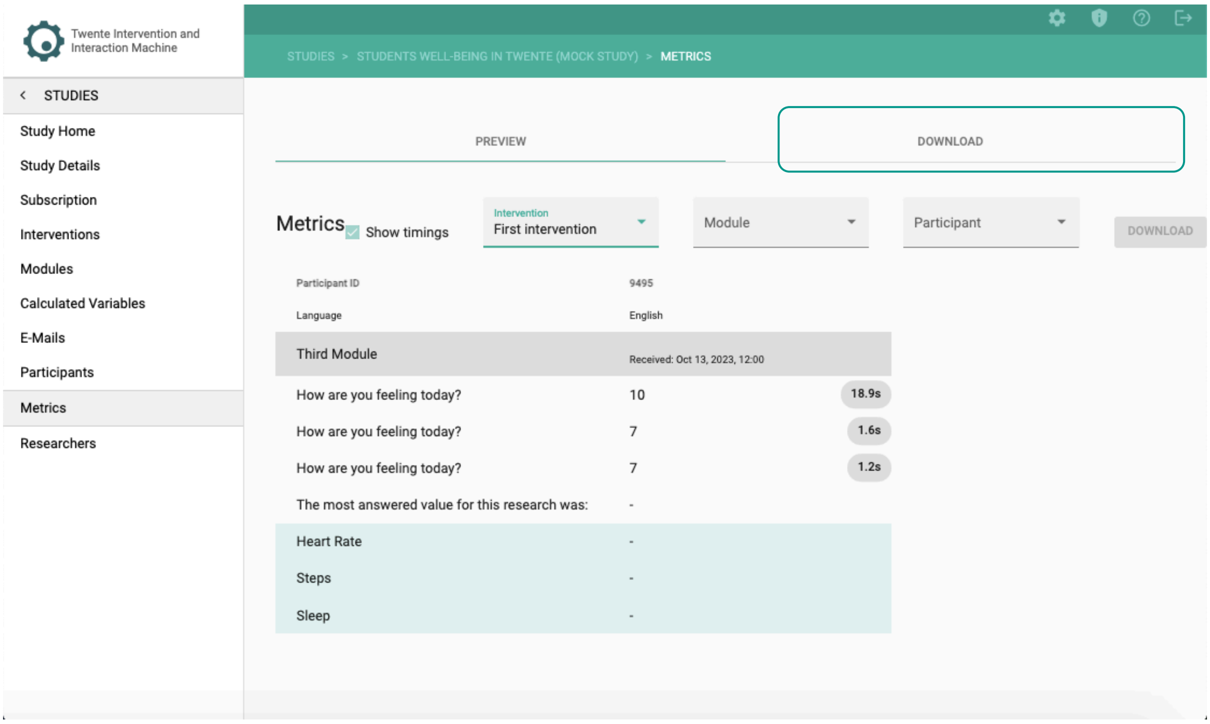


The filtered answers will download as a PDF format.

For an ESM module, a special ESM tag will be included.

AND/OR

2. To download data metrics of all participants within the module, click on the – DOWNLOAD – tab.



3. Click on – DOWNLOAD – next to Module Answers or Summary Report.

The Module Answers and Summary Report will download as a CSV format.

IMPORTING YOUR DATA METRICS TO EXCEL (OPTIONAL)

1. Open Excel.
2. In the upper row, click on – DATA –.
3. On the left, click on – GET & TRANSFORM DATA –.
4. Select from text/CSV.
5. Choose your file.
6. Click on – IMPORT –.
7. To import the data in Excel within divided columns, Select – DELIMITED – as a comma.
8. Click on – LOAD –.

Your data will open in a new Excel workbook.

IMPORTING YOUR DATA METRICS TO SPSS (OPTIONAL)

1. Open SPSS.
2. Go to – FILE –.
3. Select –OPEN – in the dropdown menu.
4. Select – DATA – in the dropdown submenu.

A new window will open:

5. Select and open your CSV data.

Text Import Wizard will open:

6. In the first step, you don’t change any of the settings and click on – NEXT –.
7. In the second step, set the variables arranged to – DELIMITED –.
8. Set the question – Are variable names included at the top of your file – to – Yes –.
9. Click on – NEXT –.
10. In the third step, set – the first cases of data begin on which line number – to – 2 –.
11. Click on – NEXT –.
12. In the fourth step, set the delimiter to a comma.
13. Click on – NEXT –.
14. In the fifth and sixth step, you don’t change any of the settings.
15. After the sixth step, click on – FINNISH –.

Your data will open in a new SPSS spreadsheet.

If the participant wants their data to be deleted, (1) you can provide the participant with the user ID and let them contact us OR (2) you can contact us directly and provide us the participant's user ID.

TROUBLESHOOTING AND FAQ

Check out our Frequently Asked Questions (FAQ). If you still need help, you can reach us via dashboard-bms@utwente.nl.

GLOSSARY TIIM

Button label: In the **TIIM** application you can customize the text to be displayed in the buttons.

Calculated Variables: The calculated variables function is a feature within **TIIM** that enables you to create numeric calculation variables involving mathematical operators, functions, or conditional statements. These variables are linked to a specific numerical module item. For the linked module item, you can later provide participants with feedback based on the participants' answers.

Dashboard: The dashboard is the interface of the **TIIM** application, where you will access, create and visualize content related to the collection of data for your study.

Dynamic text: Dynamic text refers to text that changes based on contextual or user-specific information. This can be achieved through programming or scripting that allow for the automatic updating of text based on changing conditions or user input.

Enrolment code: (also **voucher code**): A unique series of numbers and characters that will grant a participant access to the study. It can also be graphically presented as a QR code.

Heart rate: In surveys that use wearable devices or sensors, respondents may be asked to wear a device that collects data on their heart rate continuously or at regular intervals.

Intervention: Interventions are collections of Modules and organize different group conditions (e.g. experimental and control) in a study.

Item: Items are the specific questions and prompts that your participants will respond to.

Module (item): Modules are self-contained collections of items, which can be combined with other modules to form a larger system.

Progress bar: Progress bars are typically used to indicate the completion of a process or the time remaining until completion.

Randomization per module/category: Randomization of question items in a survey refers to the process of randomly ordering the questions within a section or subsection of the survey. This technique is used to reduce the potential for order effects, where the order of questions may influence the responses given. For example, if a survey asks about customer satisfaction with various aspects of a product or service, randomly ordering the questions about those aspects can reduce the likelihood that respondents will be influenced by the order in which the questions are presented. This can help to obtain more accurate and unbiased responses.

Routing: Routing refers to the process of directing respondents to specific questions or sections of a questionnaire based on their previous responses. Routing questions are used to customize the survey experience for each respondent and ensure that they only see questions that are relevant to them. Routing within a module is only possible if you have 3 numerical type items or more with the exception of the last item. Examples of Routing include, if a respondent indicates that they have never used a particular product or service, they may be skipped over questions that are only relevant to users of that product or service. Similarly, if a respondent indicates that they are not interested in a particular topic, they may be directed to a different section of the survey that is more relevant to their interests.

Sensor configuration: The **TIIM** application can collect three types of physiological data from wearable devices: **heart rate**, **steps** and **sleep**.

Sleep: Objective measures of sleep, such as wearable sleep trackers use sensors to detect movement and other physiological data during sleep. These measures can provide more detailed information on sleep patterns, such as the duration and quality of each sleep stage.

Specific order with routing: Items will be presented in the order the researcher has defined in the module either through drag and drop order or, if applicable, routing.

Steps: Activity trackers may also be used to collect objective data on step counts, which can be more accurate than self-reported data. Steps measurement surveys can provide valuable information on physical activity levels and can be used to track changes in activity levels over time.

Study: Studies are the research projects.

TIIM: Twente Intervention and Interaction Machine. **TIIM** is a software provided and maintained by the BMS Lab that provides researchers with the capability to study participants long-term or repeatedly (e.g.: cohort or longitudinal studies) and to present them with stimuli or measurement items (e.g.: questionnaires).

Unique name: Unique names are assigned by the researchers to facilitate their identification and are not visible by participants.

ITEMS LIST:

Audio recording: Participants are requested to record a private audio by pressing the red circle with the microphone symbol.

Camera image: Participants are requested to take a photo or upload a photo from their phone gallery.

CSV: A Comma Separated Values (CSV) file is a plain text file that contains a list of data. These files are often used for exchanging data between different applications. For example, databases and contact managers often support CSV files.

Dropdown: Participants are requested to select a string value on a dropdown list. The minimum, maximum and step size values can be customized, and the choice-order can be randomized.

Emotion quadrant: Participants are requested to drag a pointer to a desired location within a quadrant. Values are calculated based on coordinate. Image is customizable (min 1500px and max 2000px).

Graph: the **TIIM** application can create graphs that will enable the participants to see their data over time. The y-axis will show the module item's score while the x-axis will show its completion date. The participant clicks a button to proceed to the next item.

Likert Scale: Participants are requested to indicate their level of agreement or disagreement with a statement, using a scale (e.g., strongly agree, agree, neutral, disagree, strongly disagree). Labels are customizable.

Multi-line input: Participants are requested to type in an answer in a multiple-lines field. The maximum limit of characters is determined by the researcher.

Multiple choice: Participants are requested to select one or more options from a assortment of options.

Network: Participants are requested to add a label identifying the item, indicate the warmth of the item and then place it on one of the lines within the circle image as a response.

Number choice: Participants are requested to select a numerical value on a scale. The minimum, maximum and step size values can be customized.

Number dropdown: Participants are requested to select a numerical value from a dropdown list. The minimum, maximum and step size values can be customized.

Number input: in this type of item, participants type in a numerical value.

Number slider: in a number slider, the respondent can select a value by sliding a pointer on a left - right axis. The minimum, maximum and step size values can be customized.

Orbits: in an orbit matrix, participants are requested to select an item and place it in a location orbiting around one center

Single-line input: Participants are requested to type in an answer in a single-line field. The maximum limit of characters is determined by the researcher.

Specialized Drag and Drop: Participants are requested to drag and drop an item (e.g., word) into a category as a response.

Statement: a Statement is a piece of text that the researcher wants the respondent to read. The participant clicks a button to proceed to the next item.

Step size: step size refers to the distance between two values.

Video/Audio: videos or audio clips can be added to the survey. The participant clicks a button to proceed to the next item.

Yes/No: Participants are requested to select one of two buttons (e.g., Yes / No). Label text is customizable.

APPENDIX A

Brief description of the services contained on each tab of the sidebar.

Study Home	This is the landing page of your study, where you will see the enrolment codes and the cards for each intervention.
Study Details	Here you may rename your study, modify the dates, add languages or activate collection of biometric data.
Subscription	This page has three tabs. In the general tab, you will the see subscription details. In the pages tab you can create a message for participants who joined your study. In the questions tab you can create a screening survey to filter and select participants.
Interventions	This page will allow you to visualize your interventions or create new.
Modules	This page will allow you to visualize your modules or create new ones.
Calculated Variables	On this page, you will be able to see or create calculated variables (numeric calculations).
E-Mails	Here you will be able to compose standardized emails announcing the start of a study or clarifying participants their rejection.
Participants	This page has three tabs. In the participant details tab, you can reject or assign the participant to an intervention. The screening tab will display the screening results for each participant. In the send notification tab, you can send targeted messages to a participant.
Metrics	The metrics tab will let you preview and download the results of your survey. You can also download the timing records for each participant. In the download tab you will be able to export your test results in CSV format, for increased compatibility with different data analysis software.

Researchers	In the researchers tab you can update your details or add new collaborating researchers to your study.

APPENDIX B

Overview of Timing Rules Types.

Open Module Timing Rules:

Name	Description
On a Relative Time After Intervention Started	Opens the module after a certain time has passed since the Participant has started the Intervention. Here you only need to specify the time settings for when you want the module to begin after the intervention has started.
On a Relative Time After a Module has Finished	Releases a module after a certain amount of time has passed AFTER the Participant has completed a previous module. Therefore, 2 actions need to be taken. Firstly, you need to define the time settings for when the module should start; And choose which module you wish to use as a "trigger" module.
When a Module Hasn't Been Finished	Opens the participant's unfinished module. Choose which module you wish to use as a "trigger" module 'Based on an answer in a module item' opens a module based on the answer of a previous module. Here you need to select the module, the module Item, the condition, and the specific answer that you want to use as a trigger.
On a Fixed Date	Opens a module on a specified date and time.
Based on a Calculated Variable	Opens a module based on a calculated variable that you have set up. If you have not created a Calculated Variable yet, see the Calculated Variables - Writing the Equation section.

Close Module Timing Rules:

Name	Description
Based on an Answer in a Module Item	Closes a module based on the answer of a previous module. You need to select the module, the module Item, the condition, and the specific answer that you want to use as a trigger.
On a Fixed Date	Closes a module on a specified date and time.
Based on a Relative Time after Module has Started	Closes the module after a specific amount of time has passed AFTER the Participant has started the module.

ESM Module Timing Rules:

Name	Description
Repeat module on a fixed date	The modules will be sent to participants on the chosen date or dates without taking into account when they actually begin the study. This is suitable if your modules do not follow a specific order of if participants can join the study at any time.

APPENDIX C

Functions Description.

Name	Description
+	Returns the sum of the indicated variables.
-	Returns the subtraction of the indicated variables.
*	Returns the multiplication of the indicated variable.
/	Returns the division of the indicated variables.
^	Returns the exponential value of the indicated variable or numerical input.
SUM_ANS(N)	Returns the addition of the answered numerical responses from the indicated parameter(variable).
NUM_PS(N)	Returns the total number of participants for the indicated variable.
NUM_PS_ANS(N)	Returns the number of participants that responded to the indicated variable.
MODE_ANS(N)	Returns the most frequent responded number over the indicated variable.
COUNT_ANS(VAR,VAL)	Return the count of occurrences from the responded value of the indicated variable