

# EDUDEMOS

EDUcating through Sustainable DEMOnstrators



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**Date:**

01/07/2025

**Reason for the presentation:**  
Impact Assessment Report

Gerda Stetter Stiftung  
Technik *macht* Spaß!

ASA  
FUNDACION SERGIO BLONSO



Finnova 

gbs  
sg.ch

# Impact Assessment Report

## Objective:

The pilot monitoring and evaluation process will be led by El Rincón, with support from FSA and FINNOVA, and contributions from all project partners. Together, they will evaluate and monitor all activities under Work Package 2. El Rincón will be responsible for preparing the final report, providing a comprehensive assessment of the outcomes.

## Activities:

- Teacher Academy
- Local Student Academy
- International Student Academy

## Participants:

- VET Teachers
- VET Students

## Methodology used:

- A combination of quantitative and qualitative indicators was employed to assess the impact and effectiveness of the activities.

## Evaluation Tools:

- Direct observation
- Evaluation forms
- Photos and videos

## Teacher Academy

### *Impact Assessment Report*



# Teacher Academy

## *Impact Assessment Report*

### OBJETIVES AND DEVELOP

#### **Activity Description**

Teachers from the participating VET centers took part in the Teachers Academy, where they received training to implement and further develop the demonstrators with their students.

#### **Number of Participants**

- Expected: 10 VET teachers
- Final Attendance: 12 VET teachers (9 from Spain and 3 from Switzerland)
- Evaluation Feedback: 5 participants completed the feedback form

#### **Location and date**

- Location: Sala Nexa, ULPGC, Las Palmas de Gran Canaria, Canary Islands, Spain
- Dates: October 24–25, 2024

## Teacher Academy

### *Impact Assessment Report*

#### QUALITATIVE EVALUATION

**Fulfillment of Teachers' Expectations:** The qualitative feedback collected reflects an overall positive experience. Teachers highlighted the usefulness of the materials and the applicability of the demonstrators as educational tools.

**Level of Cooperation Among Participants:** Although only five participants completed the evaluation form, four of them successfully finished the demonstrator assembly process. The activity demonstrated strong practical engagement and peer collaboration.

**Overall Satisfaction Level (Satisfaction Rate  $\geq$  80%):** The satisfaction ratings on a scale from 1 to 10 were: 7, 9, 6, 7, and 9 — resulting in an average of 7.6 (76%). This suggests a high overall satisfaction, with some room for technical improvements.

**Classroom Applicability:** All respondents considered the experience applicable to real teaching contexts. They noted the need to adapt materials for students with more basic skill levels and appreciated the practical, hands-on approach.

## Teacher Academy

### *Impact Assessment Report*

#### QUANTITATIVE EVALUATION

**Total number of participating teachers:** 12

**Evaluation forms submitted:** 5

**Demonstrators built:** 6 (in pairs of 2 teachers per group)

**Materials used:** Printed guides, electronic components, and 3D-printed parts

**Suggestions for improvement:** Include tutorial videos, more detailed step-by-step instructions, and fully functional Arduino code samples

## FORM RESPONSES

| What is your profession?       | Indicate the demonstrator tested                                 | Have you been able to complete the process? | Was the material used helpful to you? | Do you think any key steps are missing? If your answer is yes, please explain which key step or steps are missing                                     | If you have completed the process, what do you think of the final result?                                                                        | On a scale from 1 to 10, how would you rate the process? | Do you see it as applicable in the classroom context? Please explain the reason                                  | How do you think the guide can be improved to make it more manageable for vocational education students?                                                                      | Additional comments                                                                                                                                                                     |
|--------------------------------|------------------------------------------------------------------|---------------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Docente                        | aire aerogenerador                                               | No                                          | Yes                                   | No. Me hubiera gustado disponer del motor.                                                                                                            |                                                                                                                                                  | 7                                                        | Si, es aplicable, no puedo evaluarlo al completo ya que mi proyecto no incluía el motor.                         | Ayuda a los alumnos a construir un conocimiento basado en seguir instrucciones, en cultura sostenible y cuidado del medio ambiente, a promover la digitalización de procesos. |                                                                                                                                                                                         |
| Teacher Professional Training  | Solar, wind and water harvesting in a single educational project | Yes                                         | Yes                                   | I am missing the arduino code for the two cases that I provided                                                                                       | I like it.                                                                                                                                       | 9                                                        | Yes, of course. It is very practical, and produces a discovery. I think it is very pedagogical.                  | You need a video. And the arduino code. And the parts or design elements to print them on the 3D printer                                                                      | I like it. This material is very useful. It would be good to have a list of tools necessary to prepare the class                                                                        |
| Teacher and Software Developer | Wind Demonstrator                                                | Yes                                         | Yes                                   | Detailed step-for-step instruction, Some instruction parts are too much for one step. How to place the ESP32 on the base plate for a easy programming | It's cool but the 3D printed parts don't fit so good.                                                                                            | 6                                                        | The 3D parts should fit good together and should not break easy like the wings of the Wind Demonstrator          | A instruction Video, interactive online step-for-step instruction                                                                                                             | Shorten the code for the ESP32, it's too much and too complicated for students. Use VSCode and PlatformIO for a simpler handling of all the plugins. It is much easier than Arduino IDE |
| Teacher GE                     | Solar and water                                                  | Yes                                         | Yes                                   | May be an introduction about the "why" and some more info about the project, as I was not part of it so far.                                          | I completed the wind demonstrator. I really liked the final product, however, the 3D-printed part didn't always match in size and functionality. | 7                                                        | Yes, with good personal instructions. Higher level classes should be able to follow the instructions themselves. | For lower-level students it would be helpful, if the manual and the demonstrator's pieces were in colour - the same colour of course;                                         | It was very nice with you guys in GC. Nayra, Patricia and Miguel were amazing!!!                                                                                                        |
| FP teacher                     | Air demonstrator. Construction of a wind turbine                 | Yes                                         | Yes                                   | I think there are no missing steps                                                                                                                    | Some of the pieces were difficult to fit together, mainly those at the base of the wind turbine.                                                 | 9                                                        | It is mainly applicable for students of intermediate and basic vocational training.                              | I think the guidelines are clear for students.                                                                                                                                | The experience was very fun and enriching.                                                                                                                                              |

# Local Student Academy

## *Impact Assessment Report*

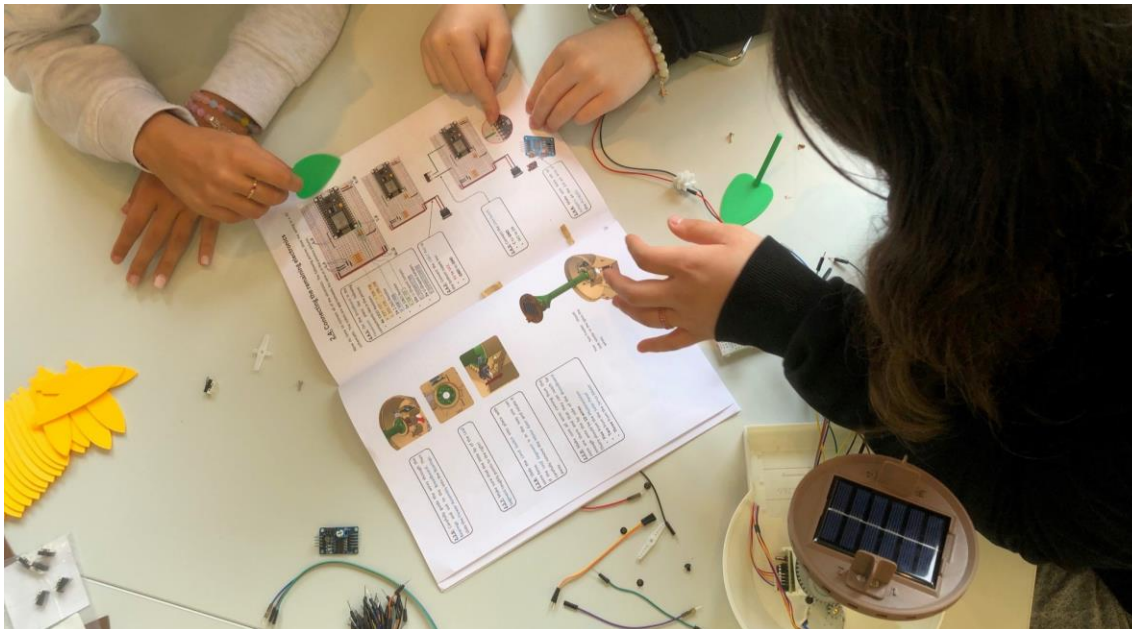
### IES EL RINCÓN (SPAIN)



## Local Student Academy

### *Impact Assessment Report*

GBS ST. GALLEN



# Local Student Academy

## *Impact Assessment Report*

### OBJETIVES AND DEVELOP

#### **Activity Description**

Students from the participating VET centers in Spain and Switzerland developed the first demonstrators created by learners, under the guidance of their teachers within their respective institutions.

#### **Number of Participants**

- Expected: 60 VET students
- Final Attendance: 92 VET students (68 from Switzerland and 24 from Spain)
- Demonstrators Built: 18 total (12 in Switzerland, 6 in Spain)
- Demonstrators Connected: 7 total

#### **Location and Dates**

- Spain (IES El Rincón): April 24, 2025
- Switzerland (GBS St. Gallen): May 22, 2025
- Switzerland (GBS St. Gallen): June 26, 2025

09/09/2025



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## Local Student Academy

### *Impact Assessment Report*

#### QUALITATIVE EVALUATION

**Active student participation in building the demonstrators:** The average agreement with the statement "I improved my technical skills through this activity" was 7.88 / 10, indicating a high level of active engagement and hands-on involvement.

**Peer-to-peer cooperation:** The statement "*I worked effectively as part of a team*" received an average score of 8.65 / 10, reflecting strong collaboration among students and a positive peer learning environment.

#### **Overall satisfaction level**

- Average satisfaction score: 8.49 / 10
- Percentage of responses  $\geq 8$  ( $\geq 80\%$ ): 81.8%

These results suggest a high level of overall satisfaction, with the vast majority of students rating the experience positively.

## Local Student Academy

### *Impact Assessment Report*

#### QUANTITATIVE EVALUATION

##### **Number of participants**

- Expected: 60 VET students
- Final count: 92 VET students (24 from Spain and 68 from Switzerland — 33 + 35 per events)

##### **Number of demonstrators built by participating students**

- Expected: At least 6 demonstrators
- Final count: 18 demonstrators (6 in Spain and 12 in Switzerland — 6 + 6 per event). And 7 demonstrators connected to IoT platform.

## Local Student Academy

### *Impact Assessment Report*

#### IMPACT AND RESULTS

**Development of Digital and Green Skills:** The average agreement with the statement *"I learned about the digital and ecological transitions"* was 7.47 / 10, indicating a moderately high impact in raising awareness and understanding of these key topics.

**Motivation Toward Scientific Subjects:** As an indirect indicator, the statement *"I enjoyed the experience overall"* scored an average of 8.49 / 10. This suggests a high level of motivation and a positive attitude toward the scientific and technological content of the activity.

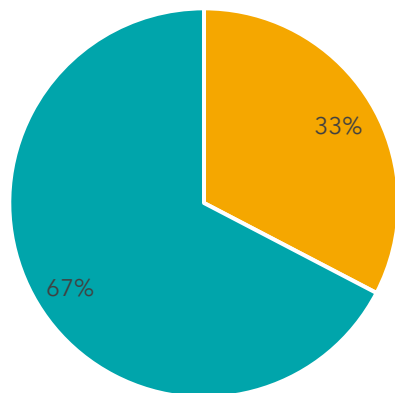
**Recommendations and Suggestions for Improvement:** Participants suggested improvements focused mainly on extending project time, enhancing organization, and providing clearer, more detailed instructions. They also emphasized the need for better-labeled materials and aligning the activity with students genuinely interested in the topic. Despite these suggestions, many respondents expressed full satisfaction, indicating a generally positive experience.

## Local Student Academy

### *Impact Assessment Report*

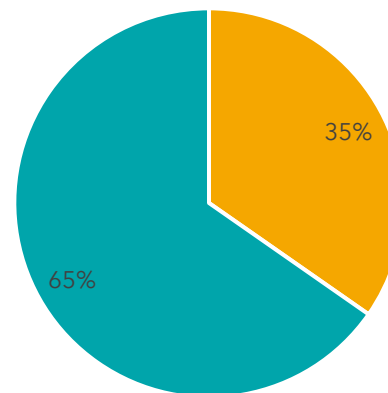
#### FORM RESULTS

Name of your VET school



■ IES El Rincón (Spain) ■ GBS St. Gallen (Switzerland)

Which model did you help build?



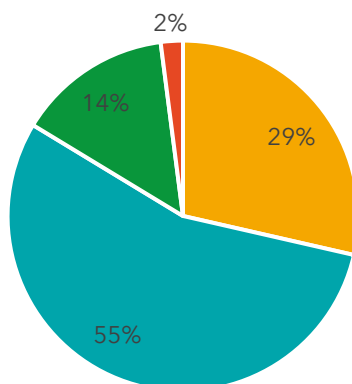
■ 3x1 Demonstrator ■ Solar Tracking

## Local Student Academy

### Impact Assessment Report

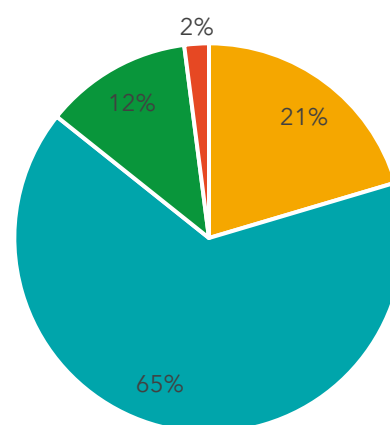
#### FORM RESULTS

To what extent do you agree with the following statements?.I improved my technical skills through this activity



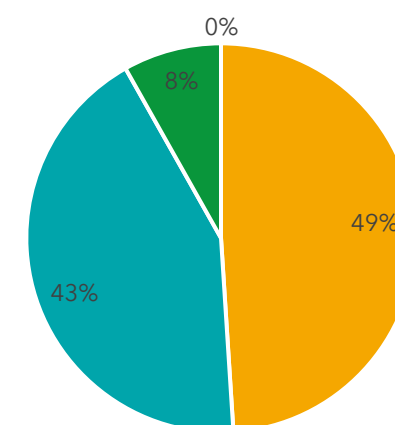
■ Strongly agree    ■ Agree  
■ Disagree    ■ Strongly disagree

To what extent do you agree with the following statements?.I developed problem-solving and critical thinking skills



■ Strongly agree    ■ Agree    ■ Disagree    ■ Strongly disagree

To what extent do you agree with the following statements?.I worked effectively as part of a team



■ Strongly agree    ■ Agree    ■ Disagree    ■ Strongly disagree



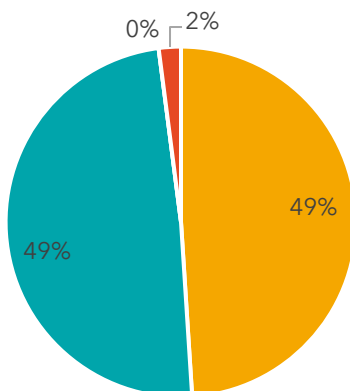
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## Local Student Academy

### Impact Assessment Report

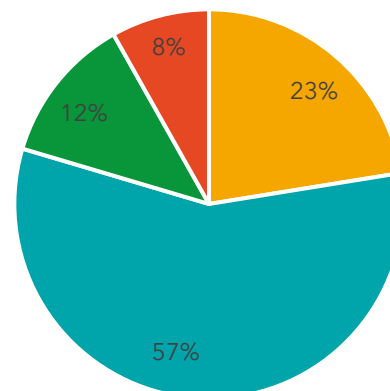
#### FORM RESULTS

To what extent do you agree with the following statements? The guidance from teachers was helpful



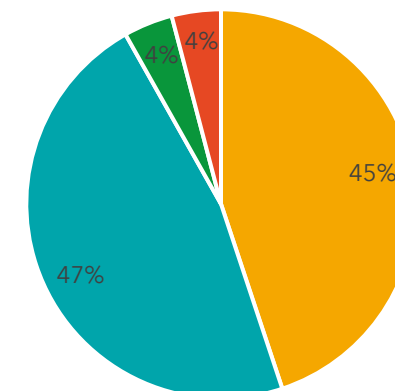
■ Strongly agree    ■ Agree  
■ Disagree    ■ Strongly disagree

To what extent do you agree with the following statements? I learned about the digital and ecological transitions



■ Strongly agree    ■ Agree    ■ Disagree    ■ Strongly disagree

To what extent do you agree with the following statements? I enjoyed the experience overall



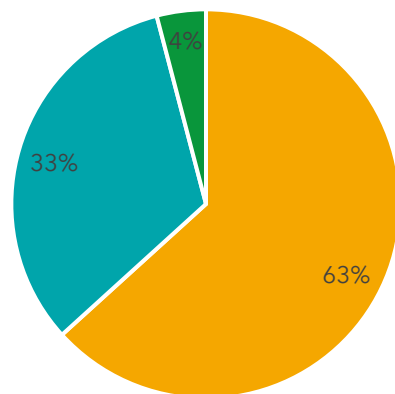
■ Strongly agree    ■ Agree    ■ Disagree    ■ Strongly disagree

## Local Student Academy

### *Impact Assessment Report*

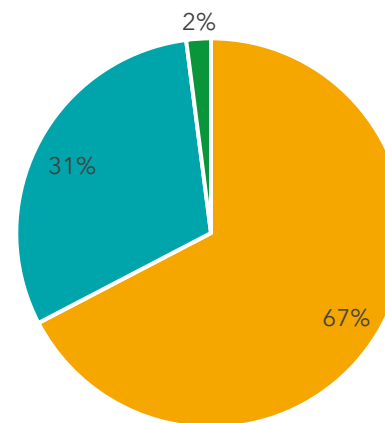
#### FORM RESULTS

Did you understand how the demonstrator connects to the IoT-enabled platform?



■ Yes ■ Somewhat ■ No

Do you feel more confident using digital tools and technologies after this activity?



■ Yes ■ Somewhat ■ No

# International Student Academy

## *Impact Assessment Report*

### OBJETIVES AND DEVELOP

#### **Activity Description**

A training activity will be held in Brussels, where 30 students and teachers from Switzerland and Spain will present their projects during a public event.

Finnova will coordinate the exchange activity in Belgium as part of the International Student Academy (Activity 3), involving students from IES El Rincón and GBS St. Gallen. The VET centers will collaborate in the implementation and support their students throughout the process.

#### **Number of Participants**

- Expected: 30 VET students and teachers
- Final Count: 42 VET students and 5 VET teachers (11 students + 3 teachers from Switzerland, 10 students + 2 teachers from Spain, and 21 students from Belgium)
- Demonstrators Built: 26 (13 "3x1" demonstrators, and 13 "Turtle" demonstrators). And 13 demonstrators connected to IoT platform

#### **Location and Dates**

Belgium (Brussels) - May 5–6, 2025

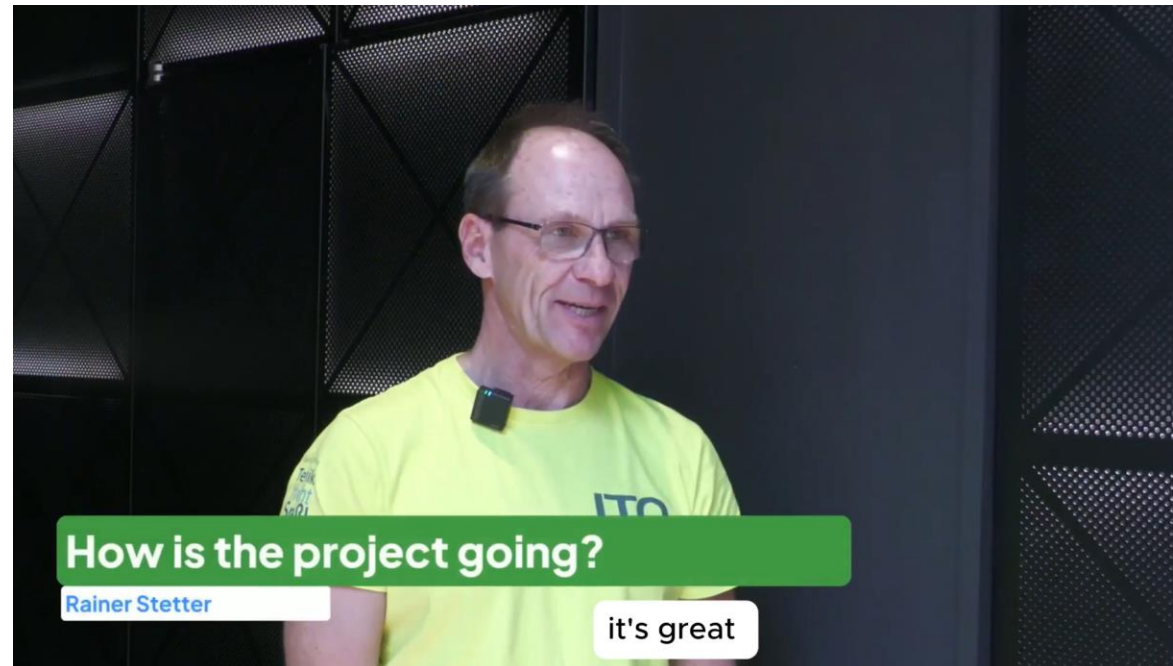
# International Student Academy

## *Impact Assessment Report*



# International Student Academy

## *Impact Assessment Report*



<https://www.youtube.com/watch?v=obGptKyltnY>

# International Student Academy

## *Impact Assessment Report*

### QUALITATIVE EVALUATION

#### **Exchange on Sustainability**

Several participants found the activity valuable for developing practical skills and raising awareness about sustainability. They highlighted its classroom applicability and educational potential.

#### **Transnational Cooperation**

Comments reflect a positive experience among students from different countries, with favorable impressions of both teamwork and the final outcomes.

#### **Overall Satisfaction**

Although the average rating was 8.29/10, 59% of participants gave a score of 8 or higher, indicating a generally positive experience with room for improvement.

# International Student Academy

## *Impact Assessment Report*

### QUANTITATIVE EVALUATION

#### **Total Number of Participants**

- 42 students took part in the activity.
- 27 students completed the evaluation form.

#### **Number of Projects Presented:** 2 main projects were presented during the final event:

- The IoT platform, developed and presented by the Swiss team.
- The design and construction of demonstrators and user guides, led by Spanish coaches.

**Number of Demonstrators Built:** A total of 26 demonstrators were constructed (13 Turtle models, and 13 3x1 models (and 13 connected to IoT platform)).

#### **Diversity of Sustainable and Digital Approaches**

Both demonstrator types combined elements of sustainability (e.g., renewable energy and environmental impact) and digital innovation (e.g., assembly, coding, IoT integration).

The diversity of approaches fostered collaboration and  used practical applications of green and digital skills.

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# International Student AcademyRe

## *Impact Assessment Report*

### IMPACT AND RESULTS

#### **Contribution to a common European understanding of sustainability**

The activity facilitated the exchange of ideas among students from different countries, promoting a shared understanding of ecological challenges and sustainability from a European perspective.

#### **Visibility of student work in international settings**

The event in Brussels allowed students to build and present their demonstrators in an international environment, giving visibility to their achievements and boosting their motivation and self-esteem.

#### **Feedback from teachers, students, and stakeholders**

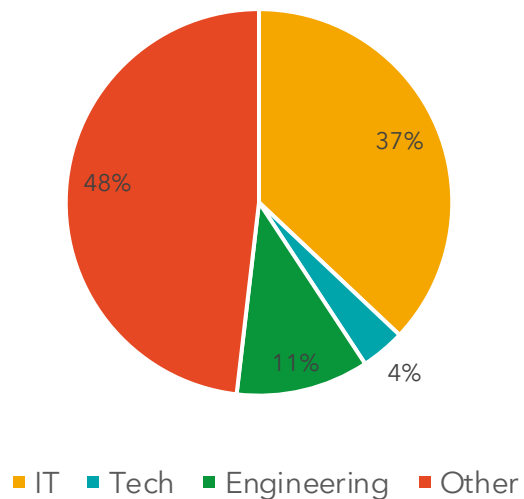
Feedback was largely positive. Participants appreciated the technical and collaborative learning experience, although the need to overcome language barriers was noted to improve communication among participants.

## International Student Academy

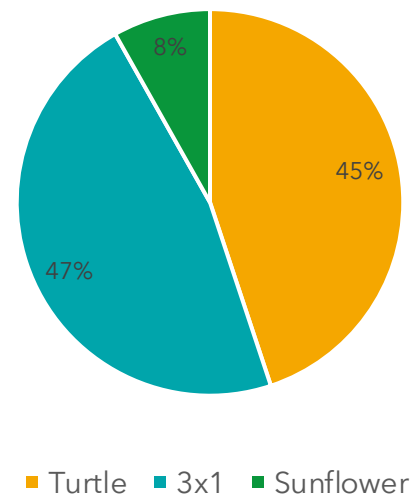
### *Impact Assessment Report*

#### FORM RESULTS

In which field do yo study/work?



Indicate the demonstrator(s) that you built completely

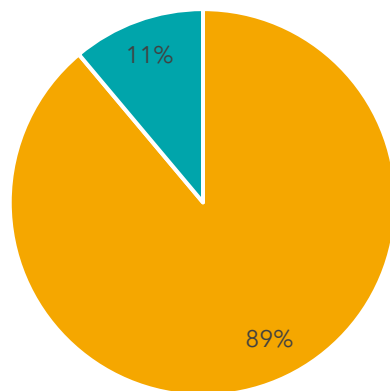


# International Student Academy

## Impact Assessment Report

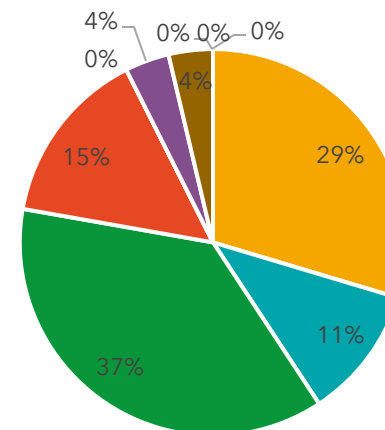
### FORM RESULTS

Were the instructions given helpful to you?



■ Yes ■ No

On a scale from 1 to 10, how would you rate the International Student Academy?



■ 10 ■ 9 ■ 8 ■ 7 ■ 6 ■ 5 ■ 4 ■ 3 ■ 2 ■ 1

## General conclusions

### *Impact Assessment Report*

#### **Overall assessment of WP3**

WP3 is rated very positively: high participation, results exceeding expectations, and an innovative, effective learning experience. Satisfaction levels were high across all activities.

#### **Achievement of specific objectives and link to overall project goals**

The four specific objectives were fully achieved, directly contributing to the overall goals of EduDemoS: educational innovation, sustainability, digitalization, and European cooperation.

#### **Lessons learned**

- Language support is essential in international activities.
- Hands-on demonstrators are motivating and effective.
- Early teacher feedback improves materials significantly.
- The use of technology requires clear and accessible guidance.

## Recommendations

### *Impact Assessment Report*

#### **Suggestions for future editions**

- Offer preparatory training sessions in English to ensure students are ready to communicate during international activities.
- Adjust the working time so that all participants can complete their demonstrators.
- Include more practical and hands-on sessions to support technical understanding.

#### **Methodological suggestions**

- Combine printed guides, video tutorials, and “learning by doing” activities.
- Encourage international teamwork from the beginning, assigning collaborative tasks.
- Use simple self-assessment rubrics to help students reflect on their process and outcomes.

#### **Strategies to increase the project’s sustainability and impact**

- Enhance dissemination of the project website, ensuring students, teachers, and external schools know about and use the available resources.
- Offer training to more teachers outside the consortium to grow the educational community.
- Build partnerships with local entities (schools, companies, NGOs) to replicate the model in new contexts.



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