

Report on the activity in the framework of the European Inventor Network



Name of the alumnus who implemented the activity

Gaute Munch in collaboration with María de Lourdes Sánchez González (head of UNESCO committee at Haderslev Katedralskole)

Short description of the activity

This activity is an interchange program between 2 UNESCO high schools: Haderslev Katedralskole (HaKa) in Denmark and IES Ramiro de Maeztu in Madrid, Spain.

The aim of the program is to engage young students across Europe in the creation of projects with focus on selected UN Sustainable Development goals (SDGs).

The fundamental pedagogical approach of the program is *transformational learning*. The program believes that innovative solutions can be created in a space of diversity where young people are collaborating across cultures. Young people in Europe experience many of the same challenges and have a lot to learn from each other. We strongly believe that by driving creative entrepreneurship within areas of mutual passion, they will build trust in their own capabilities and possibly become the inventors of the future.

This interchange program is the first pilot, and it is the aim that more will follow, and that the idea will spread to more UNESCO schools.

In this first interchange between HaKa in Denmark and IES Ramiro de Maeztu in Spain, the students will co-create projects with the aim to solve specific challenges in both countries linked to UN SDGs 4 “Quality Education” and 5 “Gender Equality”. The projects will be executed in two slots - one in Spain with the Danish students visiting, and one in Denmark with the Spanish students visiting.

The first interchange is during week 45, 2024 in Madrid. 14 students from HaKa are going to stay at the houses of 14 students from IES Ramiro de Maeztu. Groups of 4 students (2 from each school) are arranged, giving 7 teams in total. During the week of stay, each team will develop and execute a project with focus on UN SDGs 4 and 5. The project should focus on a specific challenge in their nearby environment.

As kick-off for the project development, Gaute Munch (nominated inventor of LEGO MINDSTORMS) gave a full day workshop in “Innovation and Co-creation”. Using his own story from LEGO and the creation of LEGO MINDSTORMS as reference, he was giving a hands-on/minds-on workshop, where the students were introduced to the basic principles of the Design Thinking process and tried it out themselves through specific innovation challenges. The LEGO® Education SPIKE™ Prime set was used for ideation and prototyping. After the workshop, each school was given the sets for further use. After the “Innovation & Co-creation” workshop the 7 teams kicked off their task to develop and deliver a specific product with focus on the UN SDG they had chosen. During this work the learning from the workshop was applied and the methodology of the “Double Diamond” model was followed. This helped the students to narrow down their ideas, decide the issue they wanted to contribute with, and collaborate to create a specific product which will be of benefit for their community. All groups delivered a product before the end of the week.

Date and place of the activity

November 4th to 8th, 2024

IES Ramiro de Maeztu

Calle de Serrano 127, Chamartín, 28006 Madrid, Spain

Audience (number and age of the participants)

28 students aged 16-19 (14 from Denmark and 14 from Spain) as direct project participants.

The main audience was the school community and for one of the projects the municipality of Madrid. All in all, there were around 600 people engaged in the UNESCO activities delivered by the 7 teams.

Outcomes and achievement

a) Preparing the path

At the “Innovation & Co-creation” workshop the framework of the Design Thinking process was presented by giving examples of the different phases and using the Double Diamond model with Problem space (Discover – Define) and Solution space (Develop – Deliver).

The first hands-on exercise for the teams was the “Marshmallow Challenge”. Each team gets 20 sticks of spaghetti, 1 meter masking tape, 1 meter of string and 1 marshmallow. The task is simple: Build the tallest free-standing structure only with the given materials – the marshmallow needs to be on top.

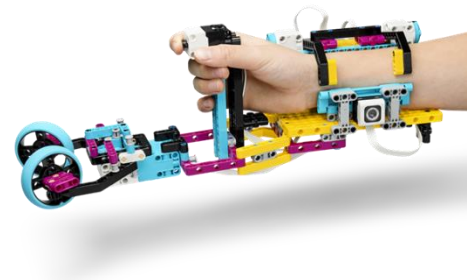
This served to warm up the teams with some of the basic challenges of ideation, problem solving, final delivery and project collaboration.

(TED talk about key learnings from the marshmallow challenge: https://www.youtube.com/watch?v=H0_yKBitO8M).



The main innovation challenge of the workshop was to design a *prosthetic hand*. First the students went through the ideation phase to generate and evaluate ideas. Then they used the SPIKE™ Prime set to prototype and demonstrate selected ideas.

(To program your inventions the LEGO Education SPIKE App was used: <https://spike.legoeducation.com/>).



The format of the workshop was intense and covered a broad scope. The young inventors were well engaged and in the following project work we could see both the innovation tools and team collaboration learning applied.

b) Student's collaboration and products

In the following 4 days of the interchange program the 7 teams were developing their UN SDGs projects. Following the methodology from the "Innovation & Co-creation" workshop they were first framing their project: The students established the theme, objective, audience and defined the product they wanted to deliver. With the frame in place, they could then develop the product, execute it and then present the final result in plenum.



The last day the teams were presenting their projects. We were quite impressed with the quality of their products and the diversity in topics covered. On the following page an overview is given of the products delivered by the 7 teams.



UNESCO- Interchange Projects

TEAMS	PROJECTS
1. Ici Marina Cecilie F. Laura	SDG: Nr. 5 Gender Equality. THEME: Providing women encouragement when choosing a college education. PRODUCT: Presentation to a group of young women about tools to choose university. OBJECTIVE: Helping women to choose a college education. AUDIENCE: Girls of 1 st and 2 nd grade of IB-High School at Ramiro de Maeztu.
2. Paula Inés Julie Anna	SDG: Nr. 4 Quality Education. THEME: Non-Biased Education. PRODUCT: Poster illustrating some of the challenges with biased messaging in education – to be placed around the school for information. OBJECTIVE: Achieve less biased education (History classes). AUDIENCE: (History) Teachers.
3. Margarita Claudia Maja Emma	SDG: Nr. 5 Gender Equality. THEME: Stereotypes in School for Girls and Boys. PRODUCT: Informative poster. OBJECTIVE: Raise awareness about stereotypes to try to ‘defeat’ them. AUDIENCE: Students.
4. Celine Olivia Elisa Narjil	SDG: Nr. 4 Quality Education. THEME: Evaluation system in High Schools. PRODUCT: Video with interviews of teachers and students. Questions about how they experience the evaluation system at IES Ramiro de Maeztu, how it affects the quality of education and opportunities for improvement. OBJECTIVE: A change in the evaluation system. AUDIENCE: Teachers and students at IES Ramiro de Maeztu.
5. Jeannette Cecilie S. Salvador Mateo	SDG: Nr. 4 Quality Education. THEME: Teacher Quality and Professional Development. PRODUCT: Interview of Spanish teachers and presentation covering the effects of number of students per class, lack of teachers and the declining quality of teacher’s education. OBJECTIVE: To spread awareness in schools. AUDIENCE: School and Educational Authorities.
6. Stine Anja Javier Mateo	SDG: Nr. 4 Quality Education. THEME: Small Minorities Education. PRODUCT: Presentation video about the education challenges for the gipsy community in Madrid. OBJECTIVE: To achieve better education for all. AUDIENCE: The Government.
7. Lotte Caroline Marco Natalia	SDG: Nr. 4 Quality Education. THEME: Education for Disabled People. PRODUCT: Interview with locals in Madrid covering their view on educational challenges for disabled people and opportunities for improvement. OBJECTIVE: Improving the education for disabled people. AUDIENCE: Local people because they can help with changing the school and they need to hear that change has to be made.

c) The transformational learning outcome

The interchange program included other social and cultural activities, where the students also learned to interact with a new culture at all levels, from adapting to new eating habits, to adjust to different ways of parenting, going out and entertaining themselves. This part of the outcome is hard to measure, but it was our clear impression that the students were constantly reflecting about their own culture and the global culture, breaking, by experiencing, some of the prejudices they had before the visit. It was clear that they changed their understanding of themselves and the world. In short, they transformed their environment while transforming themselves. Thus, it is our expectation that at the end of the project, we will get a group of more empowered young people.

At the teacher and institutional level, it is worth to mention that the Danish team got many learnings. One of them is how the school Ramiro de Maeztu, has undertaken innovative solutions that we in Denmark are a bit reserved to take. The fact that the school community - that is students, teachers, administrative personnel and parents - agreed that their kids needed 8 hours of focus learning without distractions from the social media, 8 hours of other activities of their choice, and 8 hours of sleep. They demanded school computers to the municipality of Madrid, which they got. These computers stay in the school and are available for all students by a reservation system. In that way the school makes sure that the computers are used within pedagogical objectives and reduce the screen time in the school hours. The outcome has been that the students started playing basketball, football and other types of physical activities in their breaks, and that they seem more self-confident while making presentations without reading from their computers.

The team

Below the 4 teachers of the program from right to left: José Sebastian Trocoli, Manuel Blazquez Merino, María de Lourdes Sánchez González, Gaute Munch and Gitte Grove, together after 5 intense days filled with innovation, SDGs project development, cultural interchange and lots of key learnings to build from.



Recommendations

From this first phase of the interchange program, we have learned how the combination of the "Innovation & Co-creation" workshop followed by SDGs project development has given the participants a unique opportunity to develop and demonstrate their creative entrepreneurship. The SDGs project collaboration has created strong links and intercultural understanding between the participants and in this way delivered to the purpose of **transformational learning**.

In March 2025 the 14 students from IES Ramiro de Maeztu will visit Haderslev Katedralskole and continue the development of their projects; now in the context of Denmark.

We will share our experiences and key learnings from the program in the UNESCO school network and it is our intention to continue the interchange program between HaKa and IES Ramiro de Maeztu.