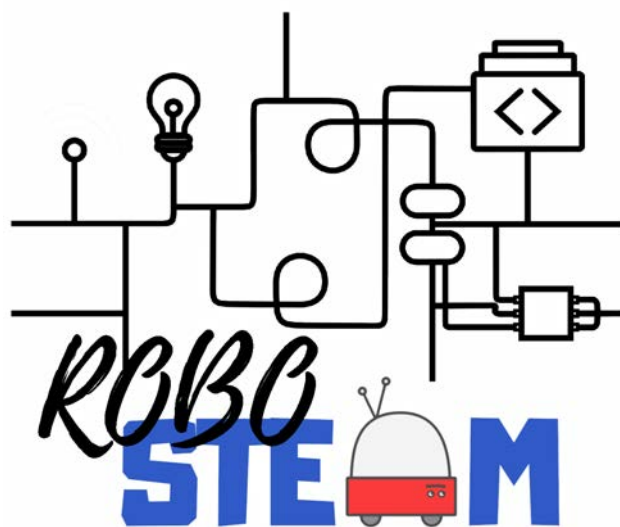

C5 – Students Exchange

Agrupamento de Escolas Emídio Garcia (Portuguese – Finnish)



Version	1.1
Date of issue	29/05/2021
Filename	ROBOSTEAM_C5_29052021.pdf
DOI	10.5281/zenodo.4864879
Nature	Short Duration Exchange Learning-Teaching
Dissemination level	Local Press; School Website; Facebook

The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Project Number: 2018-1-ES01-KA201-050939

Version History

Version	Date	Comments
0.1	23-02-2020	First Draft Version
0.2	18-03-2020	Signature Compilation
1.0	29-05-2021	Format and Errors
1.1	29-05-2021	Errata correction



Table of Contents

1. C5. STUDENTS EXCHANGE	4
2. EXCHANGE DESCRIPTION.....	4
3. PHOTOS.....	14
4. TEACHERS' AND STUDENTS' PERCEPTIONS.....	15
5. ACKNOWLEDGEMENTS	15
6. REFERENCES	15

1. C5. Students Exchange

This document describes Students Exchange with Finnish partners carried out at Agrupamento de Escolas Emídio Garcia, in the context of RoboSTEAM project [1-8] from 17th to 21st February 2020. The document includes the pilot description, the context and the main results.

2. Exchange description

2.1. Context

Portuguese (2 boys and 3 girls) and Finnish (5 boys) students belong to a different cultural and socioeconomic context. In spite of these formal differences, nowadays the global village all of us live in decreases the cultural shocks which were expected to be faced. So, the students got along with each other very well; actually, the breaking of the ice was quick on the very first day; the Finns made friends beyond.

The challenge was carried out by a group of Portuguese students of both Science and Technologies and Art courses (hosts) and the Finnish ones with an educational background totally different from Portuguese Curricula.

All students answered the online questionnaires on the first day of the exchange and did a self-evaluation on the last day (Co-Measure / rubric to assess collaboration in Steam Units). These ICT tools were useful to track how STEAM integrating by using PD&R is developed and gather evidence, which helped us assess the students.

The output (final work) was attended by two classes (8th graders and 10th graders).

2.2. Description of students and teachers involved

There were two groups of five and six students. Both groups included Portuguese and Finnish students; all of them with mixed abilities concerning STEAM related

competences. Therefore, the groups were heterogeneous. The average age was 15-year-old.

There were two Finnish Teachers and four Portuguese teachers. We also had the support of two master students from IPB.

2.3. Summary of the activities to be carried out during the pilot

Agenda:

1st Day: Monday, 17th February 2020

Travelling day, arrival in Bragança at the end of the day

Accommodation and dinner

2nd Day: Tuesday, 18th February 2020

8:30 - 10:00 Arrival of the Finnish participants at Emídio Garcia Secondary School (AEEG)

School guided tour to become familiar with the school facilities.

Answering to an online survey

10:00 - 10:20 Coffee break

10:20 – 11:50 Working on the RoboSTEAM challenge

11:50 - 12:00 Coffee break

12:00 – 13:30 Working on the RoboSTEAM challenge

13:35- 14:15 Lunch time (school canteen)

14:30 – 17:30 Going on a city tour by an electric train and visiting Bragança Castle, Military Museum and Domus Municipalis

20:30 – Teachers' dinner

3rd Day: Wednesday, 19th February 2020

8:30 - 10:00 Working on the RoboSTEAM challenge

10:00 - 10:20 Coffee break

10:20 – 11:50 Working on the RoboSTEAM challenge

11:50 – 12:00 Coffee break

12:00 – 13:30 Working on the RoboSTEAM challenge

13:35 – 14:15 Lunch time (school canteen)

15:30 - 17:30 Bragança Live Science Centre

4th Day: Thursday, 20th February 2020

8:30 - 10:00 Working on the RoboSTEAM challenge

10:00 - 10:20 Coffee break

10:20 - 11:50 Display for the school community

11:50 – 12:00 Coffee break

12:00 – 13:30 Assessment/Report

Lunch time (school canteen)

14:30 - 16:00 Delivery of the certificates .

5th Day: Friday, 21st February 2020

Departure of the Finnish team

Teachers and Researchers:

1. Agrupamento de Escolas Emídio García (AEEG)

- Maria João de Carvalho Ramos
- Manuel Trovisco
- Luísa Fernandes
- David Maltez

2. University of Eastern Finland (UEF)

- Laura Ylönen
- Hannu Vähäkoski

3. Instituto Politécnico de Bragança (IPB)

- José Gonçalves
- Caio Camargo
- Laiany Brancalião

Written today, February 21st, 2020, in Bragança, Portugal

Cultural activities

- city tour by an electric train and visiting Bragança Castle, Military Museum and Domus Municipalis.
- visit to Bragança Live Science Centre

2.4. Signatures



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AGROPAMENTO DE ESCOLAS EMÍDIO GARCIA
Código 151816

ERASMUS PLUS STRATEGIC PARTNERSHIP PROJECT
ROBOSTEAM – INTEGRATING STEAM AND COMPUTATIONAL THINKING
DEVELOPMENT BY USING ROBOTICS AND PHYSICAL DEVICES

3rd LEARNING-TEACHING-TRAINING PROJECT MEETING

Hosted at Agrupamento de Escolas Emídio Garcia, Bragança, Portugal

from 17th to 21st February 2020

LIST OF THE PARTICIPANTS

LIST OF TEACHERS				
Nº PARTICIPANT	NAME SURNAME	COUNTRY	SCHOOL	SIGNATURE
1	Maria João de Carvalho Ramos	Portugal	Agrupamento de Escolas Emídio Garcia (AEEG)	
2	Manuel J. C. Trovisco	Portugal	Agrupamento de Escolas Emídio Garcia (AEEG)	
3	Lúisa Fernandes	Portugal	Agrupamento de Escolas Emídio Garcia (AEE)	
4	David Maltez	Portugal	Agrupamento de Escolas Emídio Garcia (AEE)	
5	José A. C. Gonçalves	Portugal	Instituto Politécnico de Bragança (IPB)	
6	Caio R. D. Camargo	Portugal	Instituto Politécnico de Bragança (IPB)	
7	Laiany S. Brancalião	Portugal	Instituto Politécnico de Bragança (IPB)	
8	Laura Ylönen	Finland	University of Eastern Finland (UEF)	
9	Hannu Vähäköski	Finland	University of Eastern Finland (UEF)	
LIST OF STUDENTS				
1	Immonen Lari	Finland	University of Eastern Finland (UEF)	
2	Lehikoinen Veikka	Finland	University of Eastern Finland (UEF)	
3	Ksonen Rasmus	Finland	University of Eastern Finland (UEF)	
4	Pinter Marek	Finland	University of Eastern Finland (UEF)	
5	Pinter Richard	Finland	University of Eastern Finland (UEF)	

6	António Lanção	Portugal	Agrupamento de Escolas Emídio Garcia (AEE)	<i>António Lanção</i>
7	Bruno Lobo	Portugal	Agrupamento de Escolas Emídio Garcia (AEE)	<i>Bruno Lobo</i>
8	Alice Marcelo	Portugal	Agrupamento de Escolas Emídio Garcia (AEE)	<i>Alice Marcelo</i>
9	Clara Moreira	Portugal	Agrupamento de Escolas Emídio Garcia (AEE)	<i>Clara Moreira</i>
10	Luísa dos Santos	Portugal	Agrupamento de Escolas Emídio Garcia (AEEG)	<i>Luísa dos Santos</i>

Portugal, 21st February 2020

Coordinator of ERASMUS+



Maria João Ramos

Headmaster



Eduardo Santos

ERASMUS PLUS STRATEGIC PARTNERSHIP PROJECT
ROBOSTEAM – INTEGRATING STEAM AND COMPUTATIONAL
THINKING DEVELOPMENT BY USING ROBOTICS AND PHYSICAL
DEVICES

3rd LEARNING-TEACHING-TRAINING PROJECT MEETING

Hosted by Agrupamento de Escolas Emídio Garcia(AEEG)

From 17th to 21st February 2020

Agenda

Participants:

1. Agrupamento de Escolas Emídio Garcia (AEEG)
 - Maria João de Carvalho Ramos
 - Manuel Trovisco
 - Luísa Fernandes
 - David Maltez
2. University of Eastern Finland (UEF)
 - Laura Ylönen
 - Hannu Vähäköski
3. Instituto Politécnico de Bragança (IPB)
 - José Gonçalves
 - Caio Camargo
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1st Day: Monday, 17th February 2020

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3rd Day: Wednesday, 19th February 2020

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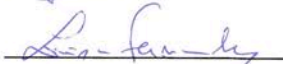
Departure of the Finnish team

Written today, February 21st, 2020, in Bragança, Portugal

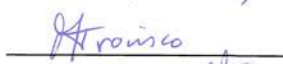
Maria João de Carvalho Ramos



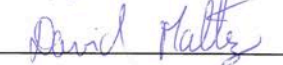
Lúisa Fernandes



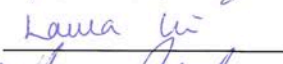
Manuel Trovisco



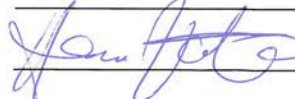
David Maltez



Laura Ylönen



Hannu Vähäköski





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José Gonçalves

José Gonçalves

Caio Camargo

Caio Camargo

Laiany Brancalão

Laiany Brancalão

Coordinator of ERASMUS+

Maria João Ramos

Maria João Ramos

Headmaster

Eduardo Santos

Eduardo Santos

2.5. Nano-challenges to be addressed

At what extent can robotics excel in the production of self-driving vehicles (autonomous and sustainable transports) for the sake of environment and road safety as a major deterrent to high speed?

Autonomous driving features and clean energy applied to transports are already showing up on regular mass-produced cars. Nevertheless, these cars are costly. Think about the benefits of sustainable and autonomous transports and their impact on society.

Human activities such as commuting in urban areas have a great impact on environment. A possible solution to address this issue can be the use of mobile robots.

We want to find out how to adapt the artwork to the features of mBots and design the route they are supposed to follow.

1. Use or built a robot that is able to follow a line
2. Use a robot that is able to avoid obstacles
3. Create the scenario for the Challenge (urban area)

2.6. Kits employed

mBot, a STEAM educational robot for beginners.

2.7. Results using the instruments and other indicators

The teachers monitored the ongoing challenge and assessed students' performance and competences acquisition based on Direct Observation. Teachers also took into account the students' perception about the experiment in order to assess the Co-Measure Test. Moreover, each group appointed a spokesperson to give testimony of the experience. Some students were interviewed for the local radio and newspaper. Throughout the challenge teachers gave students systematic feedback about their evolution and accomplishments in problem solving tasks.

Results of Co-Measure Test:

Parameters/descriptors: Peer Interactions; Positive Communication; Inquiry Rich & Multiple Paths; Transdisciplinary Approach.

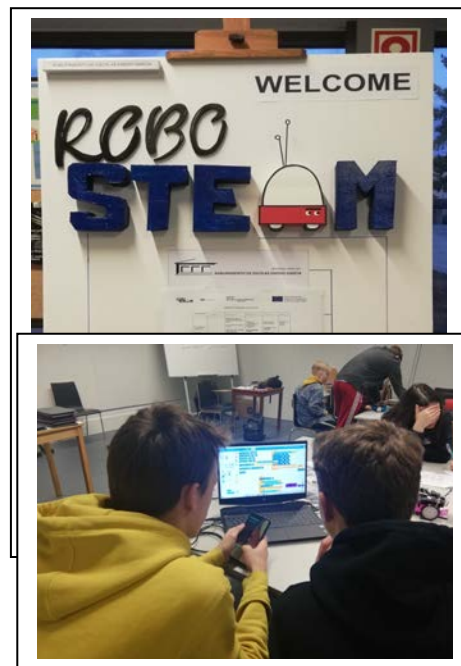
1st group: Richard Pinter, Rasmus Kosonen, Bruno Lobo - **Proficient**

Luísa Santos and Alice Marcelo - **Acceptable**

2nd group: Clara Moreira, António Lanção, Marek Pinter - **Proficient**

Veikka Lehtikoinen, Lari Immonen and Andreia Afonso – **Acceptable**

3. Photos



4. Teachers' and students' perceptions

In a global perspective the Challenge was achieved successfully. The Artwork didn't pose any kind of problems since all students took part in it actively and enjoyed building the city, no matter their educational background.

5. Acknowledgements

This document has been developed within ROBOSTEAM Erasmus+ KA201 Project with reference 2018-1-ES01-KA201-050939.

This project has been funded with support from the European Commission. This communication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

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