Co-funded by the
Erasmus+ Programme
of the European Union

Fostering Artificial Intelligence at Schools

D3.1 REPORT FOR INTELLECTUAL OUTPUT 3

Written by: Marjon Blondeel, Liliana Carrillo

Date: 29/11/2021

Table of contents

Introduction

This intellectual output, devoted to secondary school teachers, will be an easy-to-use handbook that will

- introduce teachers - especially those without experience and/or sceptical about the use of AI in their classes - into the world of AI.
- showcase appealing and inspiring examples and resources of how to use AI in the classroom covering different topics.

Our target group is secondary school teachers from all subjects, not only STEAM. We want to offer them a sound and selected theoretical background but also give them practical and efficient tools to use AI in the classroom and share activities and projects with a wide teachers network.

For the first version of the guideline we are focusing on developing lesson plans. We started with one lesson plan and used it to collect feedback from teachers in a focus group. This way we can draft a guideline concept and release a second version of a more comprehensive guideline in May 2022.

Work done

Definition of the methodology - April to June 2021

All partners participated in several meetings to define the methodology to use for the development of IO3, and particularly for the development of the lesson plans. We decided to use an agile and incremental methodology to develop the lessons and test them in their early versions directly with teachers to avoid creating very complex and advanced lessons that may not be applicable in their lessons.
For the development of the lesson plans, we are using a 4-iteration cycle with 3 goals (Analyse, Create and Test) for a total of 12 steps.

The 4 iterations cycle is as follows:

1. First Iteration: 1 Analyse, 2 Create, 3 Test Internally
2. Second Iteration: 4 Analyse, 5 Create, 6 Test externally
3. Third Iteration: 7 Analyse, 8 Create, 9 Test internally
4. Fourth Iteration: 10 Analyse, 11 Create, 12 Test externally

To conclude the development of the lesson, 3 extra steps are planned:

5. 13 Analyse, 14 Create Final version, 15 Publish to the public

Lesson 1 Algorithmic bias - June to November 2021

First Iteration: 1 Analyse, 2 Create, 3 Test Internally

1. All partners analysed the situation in Braga and the teachers. It was decided to start with a non-mathematical subject and create materials for philosophy lessons.
2. VUB created the first very high-level content for the first lesson plan on the topic of algorithmic bias (see annex 1), meant to be taught in Ethics or Philosophy classes to 16-18 years old students.
3. TBC and CU gave their initial input about the created lesson. A first list of assumptions that we wanted to test was created by VUB (see annex 2).

Second Iteration: 4 Analyse, 5 Create, 6 Test externally

4. VUB, TBC and CU gathered to analyse the first lesson and initial input. The list of assumptions to be tested with the teachers was validated and finalised (see annex 2).
5. VUB created the second version of the same lesson based on the internal analysis (see annex 3).
6. TBC organised 2 focus groups with teachers, tested the lesson on algorithmic bias, checked with the teachers the list of assumptions, and collected feedback.

Third Iteration: 7 Analyse, 8 Create, 9 Test internally

7. TBC documented the feedback given by the teachers which was analysed by VUB (see annex 4 for information on the focus group and the lessons learnt). CU and VUB further analysed the lessons learnt and agreed on further analysing the next steps to develop a new version of the lesson plan. CU and VUB discussed how to improve the lesson and decided on two steps: * check how to adapt the lesson plan; and ** start developing new lessons for new topics. CU carried out an initial desk research to understand common educational goals at national and European level (see annex 5) and presented the ideas to the partners. A decision regarding next steps was taken at the project meeting in Braga on the 24th of November. All partners agreed to develop the first lesson on bias for Citizenship and Development courses that are shared across Europe. Extra lessons will be created on topics such as taxonomy (classification of plants), mathematics , statistics, genetics (evolution), education and psychology (reinforcement learning). Specific lesson plans will be created but focus will also be on how the tool developed for IO5 can be applied in different subjects and how the sample lesson plans can be adapted to other topics.

Steps 8 to 15 need to be carried out.

Multiplier event workshops - 26 November 2021

During our multiplier event in Braga on November 26 2021, we gave two "train-the-trainer" workshops related to IO3:

- Workshop 1-Reinforcement Learning
- Workshop 2-Unconscious bias.

Workshop 1 was meant as an introduction to take away the mystery behind the current hot topic in Artificial Intelligence and the driving force behind autonomous vehicles. As discussed further in annex 4 a main issue is motivation as teachers want to know why they should teach about AI. In this workshop we wanted to get them enthusiastic about AI. For better engagement, the workshop was held in Spanish and an interactive demo was used to get them involved and learn about Reinforcement Learning. At the end of the session we also had a brainstorm with them about how we can explain concepts to teachers without adding an extra burden of having to study, whether they could use the demo in their classes, or if they have some ideas about how to include Reinforcement Learning in their classes.

Workshop 2 was meant to disseminate the initial developments of IO4 (inclusion guide where bias plays an important role) and to disseminate the first lesson plan on algorithmic bias designed for IO3. The broad concept of bias was introduced to let teachers know why the bias subject is important in education and in technology and to motivate them to understand the why behind our first lesson on bias in AI. The workshop was given in Spanish to facilitate the interaction with local teachers. Slides were created in English for broader dissemination. Local teachers showed interest in the topic and saw ways to use the initial lesson in other lessons. Specifically one English teacher wants to use the materials in her lesson and work the topic of bias as a project-based topic. This teacher invited us to give an online lesson for the students to hear a different English accent and hear about bias from us too. The local partner TBC will have a meeting with the teacher to define the goals of the activity.

Program of the multiplier event, statistics and lessons learnt can be found in annex 6.

Next steps

We will

- carry out steps 8 to 15 (see methodology).
- create several lesson plans taking into account the lessons learnt in annex 4.
- create a first version of the guideline that will contain lesson plans but also more background information for teachers and instructions on how to use tools, such as the educational tool developed in IO5, in their lessons.

More concretely:

1. One the one hand we will update the first lesson on algorithmic bias in a way that it can be incorporated in Citizenship and Development courses that are shared across Europe. We will focus in this class on bias and not on how it works internally.
2. We will develop “How does it work?” lessons to be taught in STEAM classes.
3. Finally we will investigate how we can use the educational tool developed in IO5. We see possibilities in using this as a generic tool that can be reused to teach in several subjects: e.g. pattern recognition is biology, history, etc. During the next multiplier event in June 2022 we will organise workshops where teachers will be able to test this and convert the templates to their particular subject.

As said in the focus groups, teachers want to feel safe, and the lesson plan should be simple, validated and trusted. We will provide ready to use lesson plans but also teacher notes with necessary background and guidelines.

Annexes

Annex 1: First version of lesson 1 on Algorithmic Bias

3 lessons of 1 hour

Create awareness: understand how algorithmic bias can lead to discrimination, that it is often not intended, that it is complex and that it should be solved at different levels (not only technology).

Subject	Ethics / philosophy
Level	16-18 year old
Title	Can soap dispensers be racist?
Duration	3 lesson of 1 hour
Situation before	What do students need to know beforehand? - Reflection of light
Learning objectives (after)	**After this lesson plan, we want the students to be able to:** - Recognize that technology is not neutral - Understand that technology is not "evil", but it can discriminate - Understand the reasons behind algorithmic bias: designers were not aware / there is unintentional discrimination <u>Goal:</u> - Focus on awareness! - Engineering decisions can have an ethical impact - Hard to predict at design time - Getting students engaged - Gather the attitudes towards racism & technology - Avoid judging right/wrong - Get examples that are connected to the pupil's world

Lesson 1: Awareness

Subject	Ethics / philosophy

Level	16-18 year old
Title	Can soap dispensers be racist?
Duration	1 hour
Situation before	What do students need to know beforehand?
Learning objectives (after)	**After this lesson, we want the students to be able to:** - Recognize that technology is not neutral - Understand that technology is not "evil", but it can discriminate - Designers were not aware / there is unintentional discrimination
Script	1. INTRODUCTORY DISCUSSION (40 min) **A/ Ask the question "Can technology be racist?"** Could you give **examples**? **B/ If there is no response, the teacher can show some real-life examples.** Not dataset related: - Soap dispenser - Apple watch's heart rate monitor uses a pulse oximeter. The oximeter (how it works) determines the heart rate based on how much light is absorbed through the skin and blood cells. Hence it does not work really well on dark or tattooed skin. In later versions, Apple changed the colour of the light, but other types of light aren't as ideal to monitor eg bloodstream. Dataset related: - Website Gender Shades: here evaluates accuracy of AI powered gender classification products: you see results by scrolling down (possibility: go to website and ask them to answer some questions? Eg what is algorithmic bias, what are potential harms) - Google searching to "three white" v "three black teenager":

	https://www.theguardian.com/technology/2016/jun/09/three-black-teenagers-anger-as-google-image-search-shows-police-mugshots - Now solved, but not all variants - Show original dataset - Bias in demographics: - https://www.economist.com/graphic-detail/2021/06/05/demographic-skews-in-training-data-create-algorithmic-errors - Amazon Rekognition used by US government agencies like US Immigration and Customs Enforcement (ICE): - Study ACLU (Northern California) 2019 Rekognition falsely matched 28 members of US Congress with mugshots. The false matches were disproportionately of people of colour. Blogpost ACLU. Nearly 40% of false matches were of people of colour, while only making up for 20% of Congress. In June 2020 Amazon announced a one-year moratorium on police use. Extended for one more year in May 2021. - HP webcam does not track face of black person (video from 2011, old, but still relevant and I couldn't find a newer one) - Zoom erases black faces (twitter post, sep 2020) - Bias in algorithmic cropping of images twitter: blog by Twitter on how they responded to complaints (2021) 2. WHAT ARE POTENTIAL HARMS? - Illegal discrimination and unfair practices: hiring, housing, insurance, credit rating, increased surveillance, ... - Stereotype reinforcement, social stigmatisation 3. FRAMING - What do you think is happening here? What is causing this

	bias? Is technology evil?
	- In the next lesson we will look at one example and see what happened.
	  - There is a design behind it.
	  - The designers did not have bad intentions.
	  - Bias is a side-effect.

(Assessment)	
(Materials)	
Background reading for the teacher	

Lesson 2: Algorithmic bias

Subject	Ethics / philosophy
Level	16-18 year old
Title	Algorithmic bias
Duration	1 hour
Situation before	What do students need to know beforehand? - Reflection of light
Learning objectives (after)	- Understand intuitively what algorithmic bias is (no definitions) - Explain how the soap dispenser sensor was designed (behind the scenes) - Trace the reason why the soap dispenser behaved “racistly” - E.g. “there are rules but they do not work for all populations” - Understand that racism in technology is a side-effect of limits of human design - Generalise the results to another use case (related to racism)

Script	1. <u>Pick up from last lesson (10 minutes)</u>
	  a. Generalise to other fields: poor v rich / age / gender
	  b. Show other examples

	2. Introduce algorithmic bias a. What do all these examples have in common? b. Note that some people are treated differently because of a particular characteristic (proxy). c. They often reflect biases in society. Society is biased and not the algorithm itself. Give example of gender inequality (hiring) 3. Detailed explanation of soap dispenser sensor example a. Reconstruct design: what is the problem that is to be solved, explain idea behind solution b. Detailed overview of how the solution was implemented. c. Important: avoid anthropomorphising, the soap dispenser is not smart, it looks at one number and makes a decision purely based on that number. d. Make sure everybody understands this was not intentional but an oversight during the design.
(Assessment)	
(Materials)	
Background reading for the teacher	

Lesson 3: Empowerment

Subject	Ethics / philosophy
Level	16-18 year old
Title	How to fix it?
Duration	1 hour
Situation before	
Learning objectives	Technology concerns everyone

(after)	Empower: how could we fix this? - Humans make mistake - Show that a blame game = wrong - Show that it is not ONE person, it is a combination of factors!!! - Technology = a very rich artefact (people/tech/data/...) Show - People: make designers aware: they didn't know better => educate - Tech: reflects - Data: have unbiased datasets? - Processes: have certification that checks for racism? AI as a force for good: can also be used to DETECT bias (e.g. in judgements) and link with human biases.
Script	End: Do a game that shows how humans have biases too!! - Make aware of human limitations! - Technology makes biases VISIBLE (sometimes)
(Assessment)	
(Materials)	
Background reading for the teacher	

Annex 2: Internal lessons learnt of the first version of lesson 1 on Algorithmic Bias

Before continuing working on the material we should get feedback from the teachers as soon as possible. We need to make sure that assumptions we are making are valid. Only then can we start working on more definite material with validated assumptions and a clear concept in mind.

Following questions were asked to the teachers during the focus group:

1. **Equipment**:
    a. Can videos be played?
    b. Does the teacher have a laptop/computer and is internet available?

2. **Topic**: gender & racism
    a. Are students interested in this topic?
    b. Will it distract the students from focusing on the algorithmic bias part?
    c. Are teachers comfortable teaching about this topic?

3. How much **time** does a teacher want to spend on these courses?
    a. Is one hour realistic to teach the above content?
    b. Do we need to add specific timing (e.g. minutes per part)?
    c. How many hours are teachers willing to spend on AI related topics? (general question, not related to the lesson plan above, 1 class, or several?)
    d. How many hours do teachers want to spend on preparing this lesson?

4. Which extra information is needed in the lesson plan?
    a. an estimate of the time needed to prepare the lesson?
    b. an overview of material needed: eg internet, laptop?
    c. an overview of the learning goals (cfr. official curriculum)?
    d. teaching method(s)?
    e. other?

5. Learning **effectiveness**
    a. Is this the right way to teach the topic?
        i. Are the learning experiences a good fit to teach the content
        ii. Are the learning experiences a good fit with the learning styles of the students?
    b. Will the students remember enough after 1 hour?

6. **Background** of the teacher
    a. Do teachers feel comfortable explaining the examples?

b. How much background reading does (s)he need?
c. How detailed should we explain examples + the “how does it work” part?
d. Is the following approach ok?: write down in detail what teacher should/could say + add extra explanations that do not have to be explained but help teacher understand better + add optional background reading

7. Student
    a. Is age group ok? (content related)

Annex 3: Second version of lesson 1 on Algorithmic Bias

Subject	Ethics / philosophy
Level	16-18 year old
Title	Are soap dispensers racist?
Duration	1 hour
Situation before	
Learning objectives (after)	- Students know what algorithmic bias is; - Students can give examples of how algorithms can lead to algorithmic bias; - Students see how data can lead to bias; - Students can name some potential harms;
Script	<u>Part 1. INSIGHT</u> Some examples to start the discussion on algorithmic bias and its impact. *Example 1: soap dispenser* **Teacher shows soap dispenser video** https://www.youtube.com/watch?v=YJjv_OeiHmo **Class discussion to air feelings**

- Ask feelings -> did they know this could happen?
- Do they think the dispenser is racist?

Explain mechanism + not intentional + role human design

- Explain how it works, role of human, no bad intentions
  <To add: intuitively how it works>

Example 2: Google Image Search

Teacher googles "three white teenagers " v "three black teenager":
https://www.theguardian.com/technology/2016/jun/09/three-black-teenagers-anger-as-google-image-search-shows-police-mugshots
Now solved, but not all variants
Show original dataset

<To add: original dataset + intuitively how it works and why data can lead to bias>

Optionally (if computers available, can be used as input for parts 2 and 3)
Website Gender Shades: here evaluates accuracy of AI powered gender classification products: you see results by scrolling down (possibility: go to website and ask them to answer some questions: Eg what is algorithmic bias, what are potential harms)

Part 2. ALGORITHMIC BIAS

Write down a definition of algorithmic bias

<To add: several definitions for teacher>

Part 3. IMPACT

Teacher asks about potential harms

Gauge whether students can see the harm

Ask students how the above examples (or other examples that came up) could bring harm to people.

Explain current impact

Choose one or more practical examples and give an overview of the potential harms.

	<To add: some practical examples of potential harm for each of the above examples and other examples like the sport watch> - **Health**: *Apple watch's heart rate monitor uses a pulse oximeter. The oximeter (how it works) determines the heart rate based on how much light is absorbed through the skin and blood cells. Hence it does not work really well on dark or tattooed skin. In later versions, Apple changed the colour of the light, but other types of light aren't as ideal to monitor eg bloodstream.* - Hiring - Insurance & social benefits - Education
(Assessment)	
(Materials)	
Background reading for the teacher	

Annex 4: Lessons learnt from the focus group in August 2021

In August 2021, the team from TBC ran two focus groups, with a total of 8 teachers, from different fields: mathematics, philosophy, English and Portuguese. These 8 teachers were all female and the average age was around 50. Both focus groups took place online, via Zoom, lasted approximately 2 hours each and the method used was the semi-structured interview. Teachers got the lesson [Version i of the lesson on Algorithmic Bias] that would be discussed and the script of questions in advance. The interview questions are available for consultation in Annex 2. During the conversation, questions arising from the interaction between

them and much derived from being from disciplinary areas, were also raised and gave new insights that will contribute to the process of producing the lessons and their usability.

The main concern of the teachers during the focus group was motivation. Why should they teach about AI? Some of the teachers saw this as another issue, an extra duty they have to commit to. They also resist working with themes that are not directly contemplated in their compulsory programme of classes. Another point that was made was that the guidelines or lesson plans should be easy to understand, use and implement. Also the class preparation time should not take up more of their time than it would for their regular classes.

Some of the most important takeaways:

- In the lesson plan there were too many concepts to address. We should opt for less content and less objectives per lesson. Less is more and more effective.
- The subject of bias would fit well in the *Citizenship and Development* subject where racism is an important topic. In Portugal's educational system all teachers - despite their teaching subject- have to spend a specific number of hours in this discipline. It is however important, taking into account their feedback, that we focus on bias alone and leave out the "how it works" part to avoid discussing too many topics in the same class.
- To make it easier for the teachers, we should add specific timing while still leaving it flexible so the teachers can decide what suits their students best.
- If preparation time for the lesson takes up too much of their time, i.e. having to spend more than usual, their first reaction is to not use the lesson plan and to not address it. They do not want too much information, too much material or too many options. Everything should be well organised and easy to use.
- Teachers want to feel safe, the lesson plan should be simple, validated and trusted.
- The learning goals are one of the most fundamental and important parts of a lesson plan. It is also mandatory to add them. The lesson plan should also describe what they know before and what they should have learned after the lesson.

- It is important to include teaching methods in the lesson plan. Moreover it is mandatory. However it is also necessary to give freedom to the teacher: they should have the main objectives and a list of resources but it should be up to them how they wish to lead the class.
- For the teachers it is fundamental to know how it will or can be integrated in their syllabus, the official lesson plan. The teachers also question what will happen after the implementation, how is it integrated in the student's evaluation.
- Context was also a concern. It would be counterproductive giving a class without considering the context. They suggest the lesson should start with a diagnosis; a brainstorm that invites the student to speak about what they already know. This diagnosis also helps teachers understand what to look for in terms of evaluation.
- For Portuguese teachers, the lesson plans and background information should be in Portuguese since most of them do not understand English.
- If the topic catches the attention of the students, they will learn and remember more. However the teachers mention that evaluations are also needed to motivate the students.

One important insight is the need of creating lesson plans that help the fulfilment of mandatory educational goals as this does not add lessons that may be considered unnecessary. Therefore, an initial desk research to understand common educational goals at national and European level has been carried out, and this research will be used in the next phase of the development of IO3 as follows: the first lesson plan will be improved to match educational goals for *Citizenship and Development*, and extra lessons will be created for common subjects among the participating countries like statistics and mathematics, biology (taxonomy, classification), genetics and evolution.

Annex 5: Lessons learnt for the desk research on common educational goals

An initial desk research to understand common educational goals at national and European level has been carried out, and this research will be used in the next phase of the development of IO3 as follows: the first lesson plan will be improved

to match educational goals for citizenship and bias, and extra lessons will be created for common subjects among the participating countries like statistics and mathematics, biology (taxonomy, classification), genetics and evolution.

For improving the first lesson plan, CU did some initial desk research on the educational goals for several classes in compulsory education for Belgium (https://onderwijsdoelen.be/), Portugal (http://www.dge.mec.pt/aprendizagens-essenciais-ensino-secundario) and Europe (EUgoals-Citizenship.pdf), and concluded that the bias lesson could be integrated into the Citizenship lessons (cidadania_e_desenvolvimento.pdf) in subjects related to racism, bias, equality, and some guidelines were identified (SCHOOL GUIDE COMPLETE.pdf) .

For the extra lessons, CU did some desk research on other subjects for compulsory education where the concepts of AI could be taught. CU identified some grade 5 science goals related to plant classification (5-Plants.pdf), and some data collection goals for mathematics that could be linked to the data acquisition phase of AI, and also opportunities to integrate AI into interdisciplinary lessons and project-based learning (AI_Integration_Manual_Maths.pdf).

Annex 6: Lessons learnt from the Multiplier event in Braga on 26 November 2021

FAIaS – Fostering Artificial Intelligence at Schools Multiplier event #1 - Program

Date: 26th of November 2021
Braga, Portugal
Title: “For a better understanding of what Artificial Intelligence is and how it can be used (or misused) in education and training”

Context : In the last 10 years, Artificial Intelligence (AI) has been transforming the economy, our work, and pastimes in visible and invisible ways. And, we will increasingly be supported by and interact with technology that is powered by Artificial Intelligence. It is important to realise that not only technical careers will be impacted by this evolution, but almost every profession, ranging from historians,

marketeers, healthcare workers to teachers will be changing. Every day, new AI platforms are being developed to support students and teachers tasks, but we are so busy with our daily tasks that we do not have time, or do not make time free to learn about those new trends. That is why the Erasmus+ project FAIaS (Fostering AI at Schools) has been launched, to bridge that knowledge gap and make it easy for the educational sector (schools, teachers, students and policy makers) to understand AI. The goal of FAIaS is to create easy content for teachers and students to learn about AI: learn what it is, where it is implemented, how to use it, how to create it, and also understand the positive and negative ways in which AI can impact our lives.

Morning Program:
9:00 Registration and networking moment

10:00 Welcome and Opening remarks, Joana Miranda [Executive Director of Braga, Unesco Creative City in Media Arts]

10:15 Keynote Paulo Novais " Artificial Intelligence and Educational Challenges: Fundamental Concepts, Present and Future Applications". Paulo Novais, Full Professor at the Department of Informatics and researcher at the ALGORITMI Centre, School of Engineering, University of Minho.

10:45 Presentation of the FAIaS project - Fostering Artificial Intelligence at Schools programme and expected outcomes Gregorio Robles - Universidad Rey Juan Carlos, Coordinating partner of FAIaS.

11:15 Coffee break

11:45 "An Artificial Intelligence centred on trust" Vitor Carvalho, Professor and Researcher at IPCA, Member of the Commission's Expert Group on Artificial Intelligence and Data in Education and Training at the European Commission, Maria Manuel Leitão Marques, Member of the European Parliament and Member of the Special Committee on Artificial Intelligence in the Digital Age AIDA (online), Liliana Carrillo, Founding Director of CollectiveUP, co-founder of the European Digital Development Alliance and co-founder of Shine Your Light, and Joana Miranda, Executive Director of Braga, Unesco Creative City in Media Arts.

13:00 Lunch

14:30 - Workshops

During the event the teachers had to choose two out of the four workshops:
Workshop 1 - “In a Reinforcement Learning agent's shoes”
Workshop 2 - “Discovering our unconscious bias”
Workshop 3 - “LearningML”
Workshop 4 - “Moral Machine”

Workshop 1 and 2 are relevant for IO3. Below we present some insights and statistics.

Workshop 1:
The turn-out for the workshop ‘In a Reinforcement Learning agent’s shoes’ was high, 21 teachers engaged in the workshop . There is a real interest in knowing more about AI. After the workshop teachers said they were interested in keeping up to date and wanted to know more about future events like these. During the workshop we also used a demo created by the VUB’s AI Lab to take away the mystery behind Reinforcement Learning. In December a blog post will be written and added to our website going a bit more in detail about Reinforcement Learning and where they can find more info and tools such as the demo that was used during the workshop. Although this demo is not directly suitable to be used in their classes, we have learnt that having easy-to-use tools like demos can be really helpful for their classes. We will apply this in the next versions of the already created lesson and to future lessons. In particular, we will investigate how the tool developed in IO5 can be used as a generic demo to teach in several subjects such as biology, history, languages, etc. In the next multiplier event in June 2022 we will organise workshops where teachers will be able to test this and convert the templates to their particular subject.

Workshop 2:
24 teachers registered to attend the ‘Discovering our unconscious bias’ workshop and 19 of them attended it. With this workshop we focused on the ‘why’ topic of bias, its importance, and we mentioned the impact on technologies such as AI. We

did not go deeper in the subject of algorithmic bias as we wanted to know if teachers were interested in the meta-concept of bias. All participants showed their interest and seemed to understand that the topic is essential in our teaching practises and also in technology. Some participants were particularly interested in the topic and showed interest in testing the first lesson in the classroom. Some other teachers found the subject very triggering and we noticed this when teachers were asked to use the Impact Test tool (https://implicit.harvard.edu/implicit/) from Harvard University to check if they had a bias towards/against black/white people. It is indeed a challenging subject for anyone as it is difficult to realise and/or recognize that we all have biases even though we don't mean bad to anyone. Disseminating the work on IO3 (lesson plan on algorithmic bias) and IO4 (importance of bias in AI and inclusion) was successfully done and several teachers expressed their interest to keep involved. And some of them want to integrate the topic in their lessons, for example in English lessons where students work on projects. This is a good bottom-up solution - where we create lessons together with teachers - to integrate AI in English lessons. We will also create the final version of the algorithmic bias to integrate it in citizenship and development lessons (IO3) and we will further develop IO4 and the inclusion guide.

The multiplier event and the theme of this specific workshop called the attention of European Parliament member Maria Manuel Leitão Marques because of her work on gender, inclusion, in her tasks for legislation around AI.