



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



Fostering Artificial Intelligence at Schools

D4.1 REPORT FOR INTELLECTUAL OUTPUT 4

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Date: 07/12/2021



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1. INTRODUCTION

The inclusion guide, also known as [FAIAS's result 2 or PR2](#), is all about inclusion in Artificial Intelligence and Education. Its goal is to provide (non-formal) educators with tools and knowledge about bias in education and bias in AI algorithms, and explain with examples and easy-to-use materials why diversity and gender/racial inclusion is so important in the AI and Education fields.



The inclusion guide will take the shape of a handbook with interactive materials and diversity recommendations. With this guide, we want to contribute to the creation of a more inclusive education system as we will empower educators to tackle biases.

In November 2021, we released a first version of the guideline in the form of a workshop, with a presentation that contained theoretical and practical exercises. The first version was presented in the Multiplier Event in Braga (Portugal), and it was used to collect feedback from the teachers in order to draft a guideline concept. A second version will be released in May 2022, based on the feedback.

The impact of this guide and work with educators will support the workforce to become more diverse little by little, as educators will be more conscious of the importance of forming more heterogeneous groups in the technology sectors, and will also learn other ways to tackle the bias in their own classroom and workshops.

In the next sections, the steps taken so far to create this inclusion guide are explained.



2. WORK DONE

2.1. Definition of the Methodology - June to September 2021

Since for the development of IO3 (Project Result 1), the team chose to work in iterations for incremental development of practical lessons, a similar approach was followed to create IO4 (Project Result 2).

We decided to use an agile and incremental methodology to develop the inclusion guide and its materials, and test everything in their early versions. The testing was to be done directly with educators to avoid creating very complex and advanced materials that would not be applicable in their practices.

For the development of the inclusion guide, the partners follow a 4-iteration cycle with 3 goals (Analyze, Create and Test) for a total of 12 steps.

The 4 iterations cycle is as follows:

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

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

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

Fourth Iteration: 10 Analyze, 11 Create, 12 Test externally

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

13 Analyze, 14 Create Final version, 15 Publish to the public

2.2. Inclusion guide version 1 - April to November 2021

First Iteration: 1 Analyze, 2 Create, 3 Test Internally (April to June 2021)

- 1- CollectiveUP research information about inclusion and AI, and took also inspiration from the first lesson plan created by the VUB for algorithmic bias.
- 2- CollectiveUP created the first high-level content for the inclusion guide and present it to the partners in June at the 1st Project Meeting in Madrid.
- 3- All partners gave initial feedback about the high-level content for the inclusion guide.



Second Iteration: 4 Analyze, 5 Create, 6 Test externally (June to November 2021)

- 4- CollectiveUP research further information about unconscious bias and analyzed the existing information from other sectors and found 2 presentations to be very helpful (see annex 1). CollectiveUP interviewed educators in Belgium who work on STEAM topics to understand how much they already understand biases and whether this is being taught in lessons.
- 5- CollectiveUP prepared the first materials for a workshop on unconscious bias (see annex 2), and the insights captured from the input received from partners and interviewed educators was incorporated.
- 6- TCB organized a workshop in Braga, and CollectiveUP gave the workshop on unconscious bias to teacher from the region who attended the multiplier event. The workshop was tested with teachers in Braga and TCB collected feedback from them.



Third Iteration: 7 Analyze, 8 Create, 9 Test internally (November 2021 to April 2022)

7- TCB analyzed the feedback given by the teachers and documented it (see annex 3 and 4). TCB shared the feedback with CollectiveUP. CollectiveUP analyzed the feedback and researched further ways to improve the unconscious bias workshop materials.

8- Currently we are creating the second version of the inclusion guide in the form of an unconscious bias workshop. We have already created some guides and examples of gender bias illustrated by using the tool LearningML.

Steps 9 to 15 need to be carried out.

2.3. Dissemination actions

2.3.1. Multiplier Event workshops - 26 November 2021

During our multiplier event in Braga on November 26 2021, CollectiveUP gave a “train-the-trainer” workshops related to Intellectual Output 4 (project result 2): a Workshop on Unconscious bias.

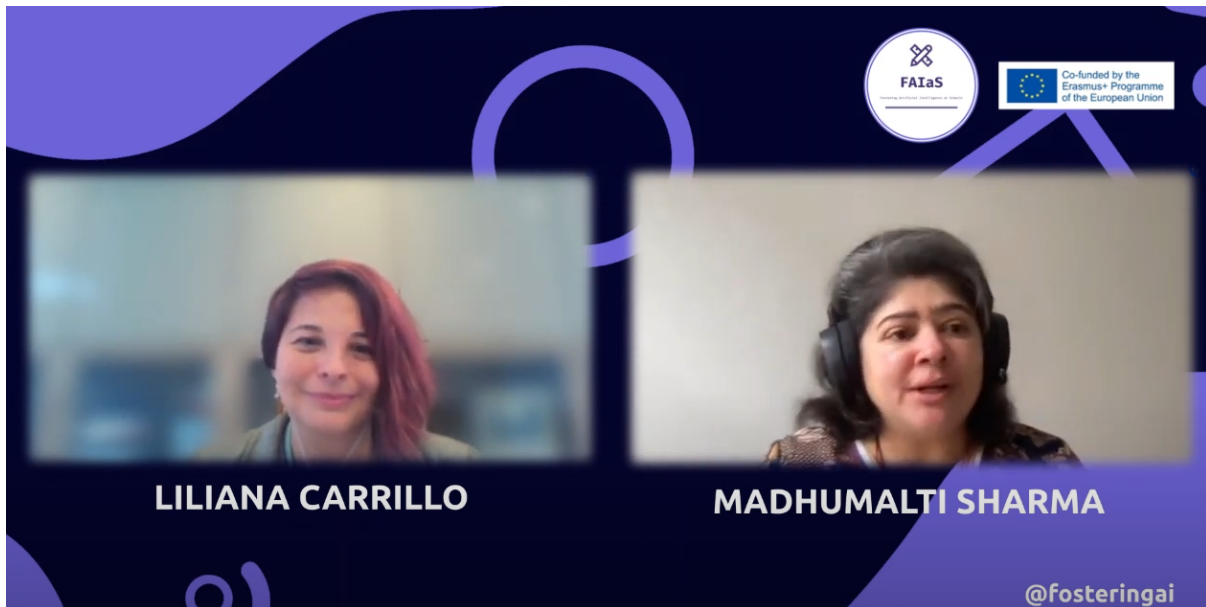
This workshop was meant to disseminate the initial developments of IO4 (inclusion guide where bias plays an important role) and to disseminate the first lesson plan on

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 TCB will have a meeting with the teacher to define the goals of the activity.



2.3.2. Interviews and Youtube - January - March 2022

CollectiveUP and URJC have interviewed several STEAM educators regarding several topics of AI, and gave special attention to 'Bias in AI'. The interviews are being used for communication and dissemination purposes and they are being also used to gather needs from the educators, and understand what is already used in the classroom, and what is still missing to tackle our biases in education and technology.



3. NEXT STEPS

As next steps:

- Continue the deep interviews with educators in the coming months, and record them, edit them and post them on our youtube channel and publish the text on our blog as new posts.
- Create a new post that summarizes the initial conclusion from the talks with educators that took place in 2021, and document that process for dissemination purposes.
- We will publish on our blog the bias materials and workshop that have been developed so far, and the feedback from teachers.
- We will develop offline ways (such as games or activities) to teach educators about AI and data to be more inclusive ourselves.



4. ANNEXES

4.1. ANNEX 1: Desk Research, Presentations

CollectiveUP has analyzed a lot of information and have selected some very interesting materials that are a good enough for educators, and that are a good basis for the development of the more specific materials about unconscious bias for this Fostering AI at Schools project.

All the information has been collected here:

<https://drive.google.com/drive/u/0/folders/1MacHVweOSk9HcWksn3dgmXjeaffklXc>

4.2. ANNEX 2: First version of the Unconscious Bias Workshop

CollectiveUP has created a first version of a workshop and the slides are visible here:

https://docs.google.com/presentation/d/1f0TiuhBCs-iH0AjLW_erm-6TkZtLJPQJ/edit?usp=sharing&ouid=102386105614696385230&rtfpof=true&sd=true

4.3. ANNEX 3: Feedback from teachers from Braga

TBC partner sent a survey to teachers who attended the workshop on 'Discovering our unconscious bias' at the Multiplier Event – Braga, 26th of November 2021.

The survey received a total of 24 responses. Of those 24, ten people reported to have participated in workshop #2 - "Discovering our unconscious bias".

From the 14 questions that incorporated the survey, the following are the ones relevant for the evaluation of the workshop:

7. Which workshops did you attend? [multiple choice]

8. How do you evaluate the workshops in terms of usefulness in the context of your educational activity? [Very Useful / Useful / Not very useful / Not useful at all / I did not participate in any workshop]



9. Describe what you liked most or least about the workshops you attended. [open answer]

11. How would you describe your experience of this activity? [open answer]

From the ten people that identified having attended the “Discovering our unconscious bias” workshop, six evaluated it as “very useful”, and four as “useful” for the context of their educational activity.

Participants' answers to the open answer question number 9 (related with the two workshops in which each teacher participated):

“I consider that the two workshops were interesting, pertinent, and related to the theme. Workshop 2 deserved a more positive evaluation, given that workshop 4 did not meet my expectations.”

“I liked the activities. We had little time to develop what was done.”

“What I liked least was the fact that the computer workshops were in English. Although people were helping with translation, the impact is not the same.”

“The topic was approached in a very practical and interesting way.”

“Practicality and indication of useful tools that can be used with the students.”

Participant's answers to the open question number 11 (related with the Multiplier Event in general):

“It was an interesting and gratifying experience because, apart from the relevance of the theme, it was also pertinent since it opened important horizons for the Philosophy subject that I teach.”

“Although I have enjoyed and learned in the training, I consider that I am “light years” away from using computers in teaching-learning.”

“Relevant to my professional and personal activity.”

4.4. ANNEX 4: Feedback from TBC/Sara

-The workshop gathered the interest of a large group of teachers, as the subject tends to be quite appealing.

-Language problems – despite teachers understanding English in a generic way, most of them felt blocked with some words (bias being one of them).

-I felt that the Computer Activity was a bit unclear for the teachers – some of them didn't understand the connection with the first part and – again – some had problems with the English words. Also, the platform is not so user-friendly and visually appealing at first, which demotivated some. I felt that some teachers were uncomfortable with the test, especially when the machine relates the concepts “good/bad” with the options.

-Perhaps this exercise needs a bit more explanation before starting, but I think that the difficulties with language differences also made it harder for them to get into context.

-It seemed to me that the second part of the workshop is crucial for the participants to finally connect the dots. Unfortunately, I think this part suffered from a lack of time to really develop.

-In a general way, I believe that the topic is of great interest to teachers and non-formal educators and that the structure is well thought out. Nevertheless, the workshop should have been longer, to accommodate all the activities in the best way. Also, when speaking with foreign participants, I would add that making sure, from time to time, that everyone in the room is on the same page regarding specific words or concepts, may also be relevant.