air4children

# Piloting Diversity and Inclusion Workshops in **Artificial Intelligence and Robotics for Children**

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Inclusive HRI Workshop: Equity and Diversity in Design, Application, Methods, and Community

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# Introduction

The following are few challenges when promoting diversity and inclusion of AI and Robotics for children in low-income countries:

- AI and Robotics workshops are usually expensive courses and these are taught in private schools,
- There are little to none specialists to teach AI and Robotics, and
- There are little to none child-centred materials on those specialised fields for gender balanced groups

# Introduction

**We hypothesized that piloting workshop in a Mexican town might lead us to have better understanding of the needs and challenges of promoting diversity and inclusion of teaching AI and robotics for children with open education resources.**

Xicohtzinco, Tlaxcala México has 14,197 habitans  (6762 males and 7435 females) with 19 schools including seven kindergartens (3 public and 4 private), seven primaries (4 public and 3 private), four secondaries (2 public and 2 private) and one public high-school. **As for the 2020 census.**


# Resources to promote Diversity and Inclusion in AI and Robotics for children

1. Free and open-source software, open-source hardware and open educational resources
    - Otto humanoid: a 200 Euros educational robot
2. Ensuring education and Inclusive Learning
    - Personalisation of education, appropriation of the technology as a community resource and schools as lifelong learning spaces
3. Alternative education programs with new technologies (e.g., Montessori, Waldorf, and Regio Emilia)
    - Montessori principle based on the concept of concrete to abstract: “What the hand does, the mind remembers.”

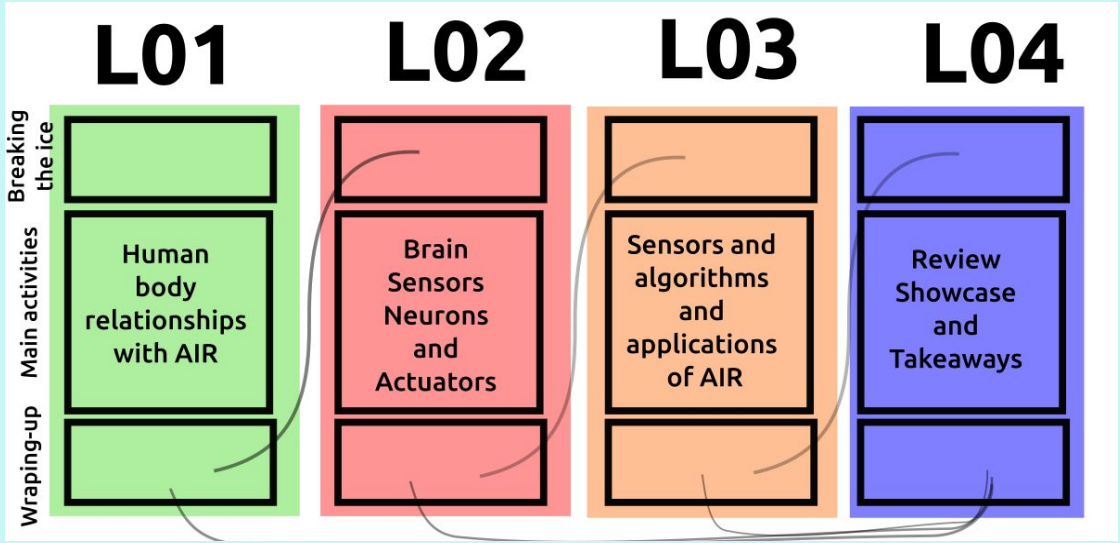

# Designing Diversity and Inclusion Workshops

**Lesson 01:** Develop the children's curiosity about AI while emphasizing the importance of interpersonal connections

**Lesson 02:** Children began to work with more abstract concepts, developing problem-solving skills as well as cooperatively working relationships.

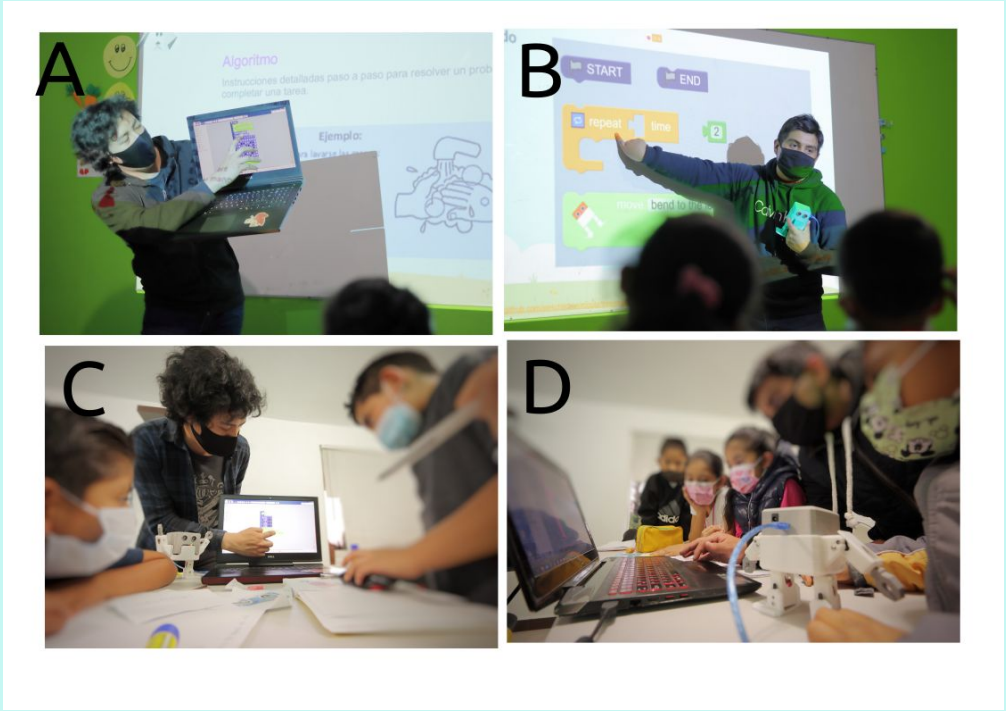
**Lesson 03:** Children incorporate knowledge they gained previously and are able to put concepts together.

**Lesson 04:** Children showcase their final work promoting a sense of achievement and their social emotional well-being.



# Piloting Diversity and Inclusion Workshops

- Children enjoyed to learn the fundamentals of AI and robotics by coding, designing and playing with open-sourced robots.
- The instructors embraced the different skills of children in small groups and supported children during each lessons.



# Conclusions, limitations and future work


- Considering resources of open-source hardware and software and principles of Montessori education, we promoted diversity and inclusion of teaching "Artificial Intelligence and Robotics for Children"
- We successfully organised a pilot workshop of four lessons that promote diversity and inclusion on teaching AI and Robotics for children to a small gender-balanced sample of 14 children of average age of ~7.6 years old.

Limitations

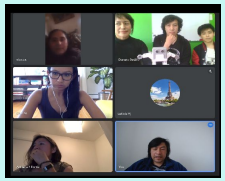
- We did no consider metrics to quantify the impact of the workshop but we did identify the needs of the workshop that might be addressed in future work.
- The workshops were free of cost but no sustainable model was considered for this pilot experiment.

# Conclusions, limitations and future work


Future work

- We will organise a second pilot workshop in late 2022 or early 2023 with more lessons and perhaps invite more participants, and
- In our next workshop, we will design and run a pre-survey to identify the specific needs of participants and will create an appropriate study design.

# Get it touch



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