Use of AI and ICT to Support Inclusion of Learners with Autism, ADHD, and Learning Difficulties

From Innovation to Inclusion: What Works in Practice

Dr May Agius: Research Consultant

may.agius@um.edu.mt

unesco
Institute for Information Technologies in Education

Introduction

- This presentation shares findings from UNESCO's recent global study on AI and inclusion.
- Aim: to explore how technology; AI and ICT, supports learning, communication, and participation for neurodiverse learners, especially those with autism, ADHD, and learning difficulties.

unesco
Institute for Information Technologies in Education

CENTRAL CHINA NORMAL UNIVERSITY

EmpowerEd: Enabling Inclusive teaching and learning through ICT and AI-Driven Solutions Project

Objective:
To foster a global initiative leveraging AI capabilities to enhance the quality and accessibility of special education, particularly for children with autism

unesco
Institute for Information Technologies in Education

CENTRAL CHINA NORMAL UNIVERSITY

Why this research is needed

- Many children with neurodevelopmental differences remain excluded from meaningful participation in learning.
- Teachers often lack training, tools, or confidence.
- AI and ICT can bridge these gaps—**if designed and implemented inclusively.**

Technology doesn’t replace inclusion; it enables it.

unesco
Institute for Information Technologies in Education

Why this research is needed

Autism

Communication, predictability, sensory support

ADHD

Regulation, organisation, flexible learning

Learning difficulties

Accessible text, multimodal input, extra time

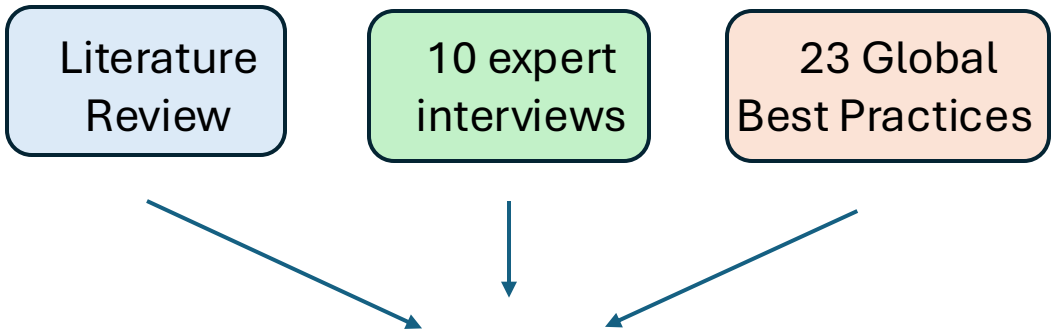
Barriers

Limited tools, inflexible teaching, lack of training, affordability

unesco
Institute for Information Technologies in Education

CENTRAL CHINA NORMAL UNIVERSITY

Methods

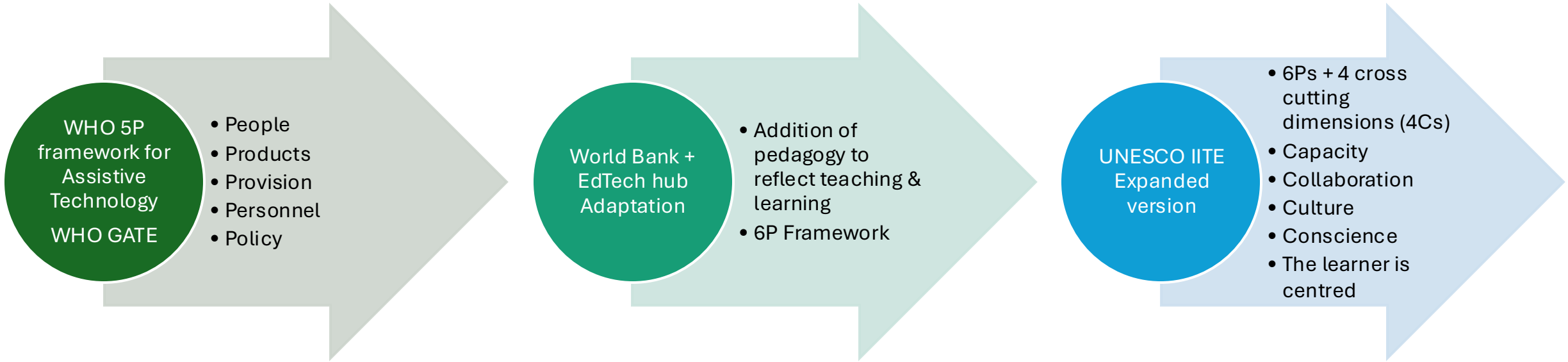


- Combined **literature review**, **10 expert interviews**, **23 global best practices**
- Experts and contributors from Europe, Australia, the U.S., Serbia, Qatar, Kazakhstan, Uganda, China and others
- Case studies demonstrate inclusion through AAC, robotics, AI literacy, and digital co-design

unesco
Institute for Information Technologies in Education

CENTRAL CHINA NORMAL UNIVERSITY

The Framework: 6Ps + 4Cs

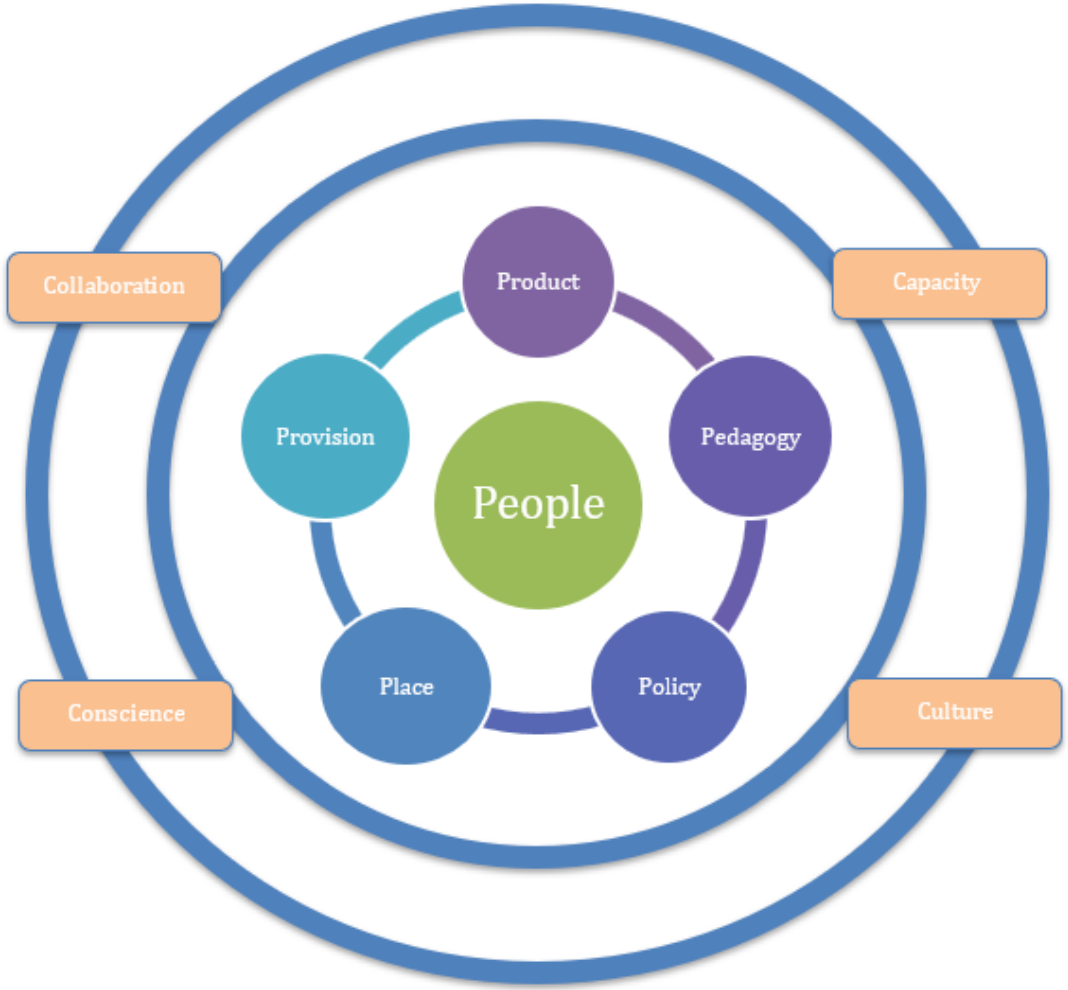


unesco
Institute for Information Technologies in Education

CENTRAL CHINA NORMAL UNIVERSITY

The Framework: 6Ps + 4Cs

- **6Ps:**
  People at the centre → supported by the right **Products** → embedded in inclusive **Pedagogy** → enabled by **Policy** → grounded in **Place** → sustained through **Provision**.
- **4Cs:**
  Capacity, **Culture**, **Collaboration**, and **Conscience** strengthen all Ps and ensure equity, cultural fit, and ethical use.



Institute for Information Technologies in Education

The Framework: 6Ps + 4Cs

6Ps – Brief definition of each

1. People

The individuals involved — learners, families, teachers, therapists — determine whether technology truly supports inclusion, so their voices must guide all decisions.

2. Products

Digital tools, AI systems, assistive technologies, and mainstream devices must be accessible, appropriate, and adaptable to diverse learner needs.

3. Pedagogy

Inclusive teaching methods ensure that technology enhances learning rather than becoming an add-on or barrier.

unesco
Institute for Information Technologies in Education

CENTRAL CHINA NORMAL UNIVERSITY

The Framework: 6Ps + 4Cs

6Ps: Definitions

4. Policy

Policies create the enabling environment for equitable, ethical, and sustainable use of AI and ICT across education systems.

5. Place

Physical, digital, and socio-cultural learning environments influence who can access technology and how effectively it is used.

6. Provision

Funding, infrastructure, procurement, and ongoing support determine whether inclusive technologies reach all learners, not just a few.

unesco
Institute for Information Technologies in Education

The Framework: 6Ps + 4Cs

The 4Cs – Cross-Cutting Principles

1. Capacity

Educators, families, and learners need training, confidence, and digital skills to use inclusive AI and ICT tools effectively and sustainably.

2. Culture

The attitudes, expectations, and digital habits within a school/system that shape whether AO and ICT tools are welcomed, trusted, and meaningfully used for inclusion.

3. Collaboration

Active partnerships between learners, teachers, families, technologists, and policymakers are needed to co-design, implement and refine inclusive technology solutions.

4. Conscience

Ethical considerations such as fairness, privacy, safety,

and cultural respect must guide all AI and ICT decisions.

unesco
Institute for Information Technologies in Education

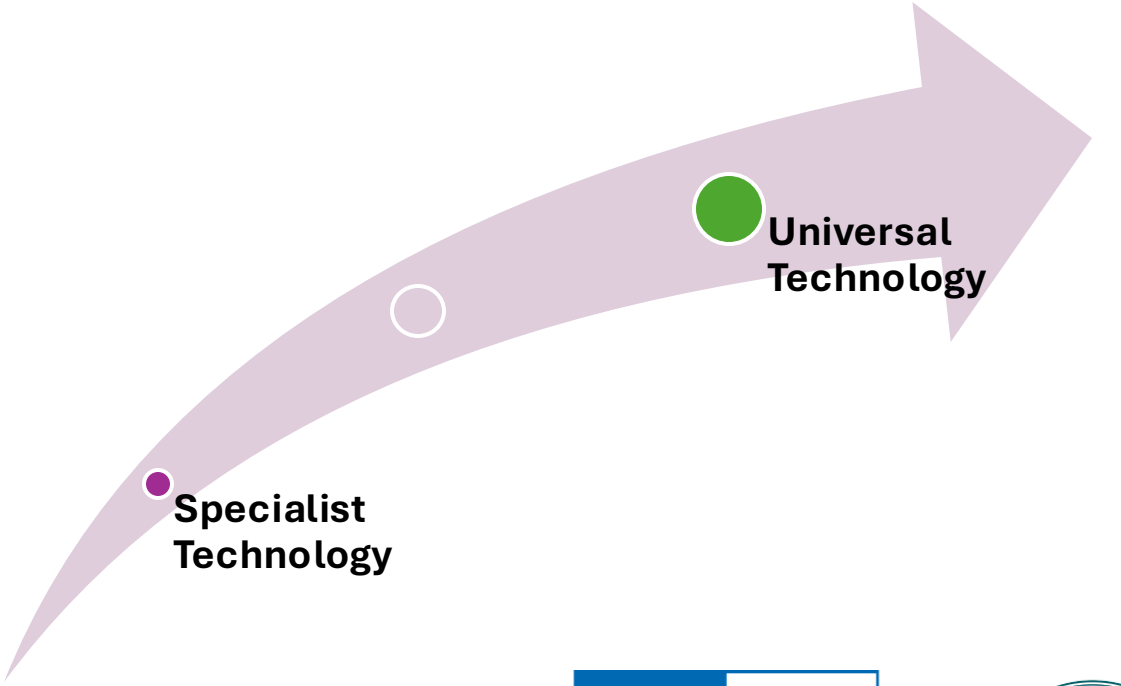
Webinar 1 focus:
What Technologies Are Being Used by Children and Teachers?

Mainstream Supports	• Text-to-speech • Captions • Emojis • Google Keep
Assistive and AAC tools:	• MARvoc app • Clicker 8 • EasyRead • Transition planning apps
AI and adaptive tools	• ChatGPT • Copilot • Personalised feedback systems
Innovative tech	• Social robots (NAO, Emma) • VR/AR learning environments

unesco
Institute for Information Technologies in Education

The “Mainstreaming Effect”

- Tools like TTS and word prediction evolved from specialist AT into built-in features on phones and Chromebooks.
- AAC now used across classrooms to benefit all students.
- Inclusive design benefits everyone.



unesco
Institute for Information Technologies in Education

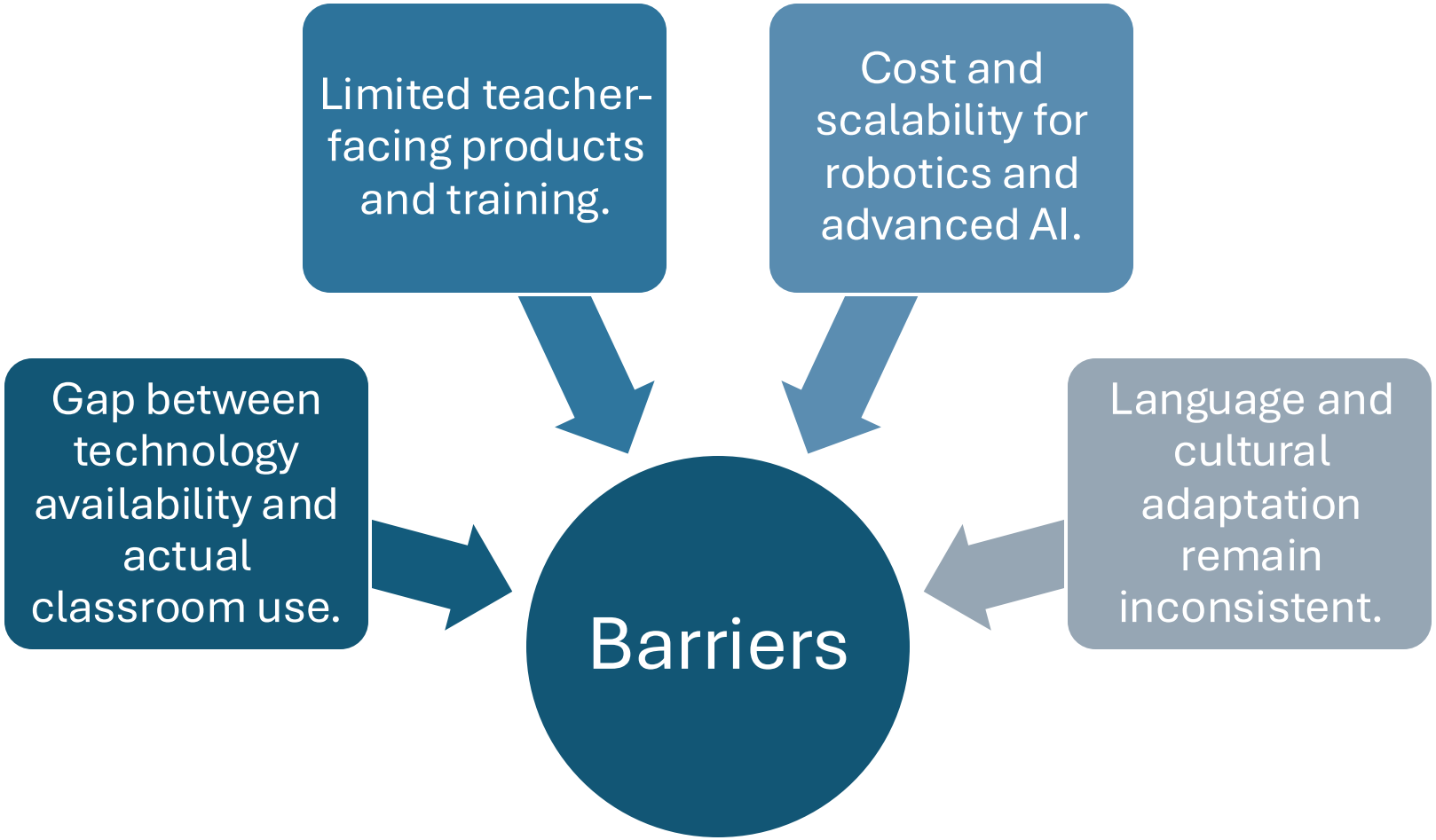
Accessibility, Affordability, Appropriateness

Main findings:

- Accessibility improved through built-in features.
- Affordability improved, but robots and VR remain costly.
- Cultural fit is still weak; many products imported without local adaptation.
- Few tools are designed for teachers themselves; most focus on students.

unesco
Institute for Information Technologies in Education

Key Challenges



unesco
Institute for Information Technologies in Education

CENTRAL CHINA NORMAL UNIVERSITY

Moving Forward

Four key messages:

- **Co-create** with teachers, families, and learners.
- **Build capacity** so teachers feel confident using AI and ICT.
- **Ensure conscience** – ethical, child-centred design.
- **Maintain consistency** between policy and classroom realities.

unesco
Institute for Information Technologies in Education

CENTRAL CHINA NORMAL UNIVERSITY

Thank you

Learn more: iite.unesco.org

unesco
Institute for Information Technologies in Education

Education 2030