Evolving ~~Play~~ *Learning* Technologies
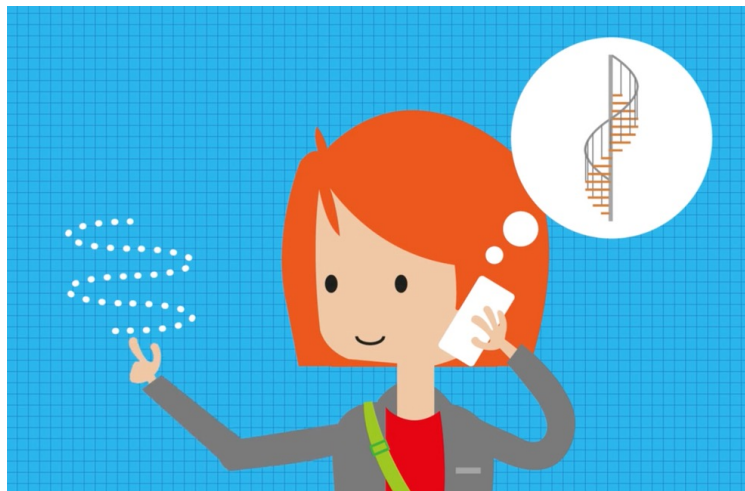
Andrew Manches

Congress ICT in Early Childhood Education

March 2022

Seville, Spain

Why do we gesture?

- And what has that got to do with children and technologies?

Depends upon... context

- Many factors shape if and how children interact with technologies.

Wider context

Is technology good for children?

Depends…. on definitions

- Technology is changing what we mean for concepts such as 'play', 'social', or 'learn'.

DIGITAL PLAY
Lydia Plowman

THE UNIVERSITY of EDINBURGH
Moray House School of
Education and Sport

https://www.de.ed.ac.uk/sites/default/files/2020-07/Digital%20Play%20-%20Plowman%202020.pdf

Is technology good for children?

Depends on…. design

- Designs can encourage creativity

- Unclear whether transfers

Exploring Play and Creativity in Pre-Schoolers' Use of Apps

TAP
Technology and Play

https://edinburgh.academia.edu/LydiaPlowman

Is technology good for children?

Depends on…. how we interact with the technology

How do we interact with technology?
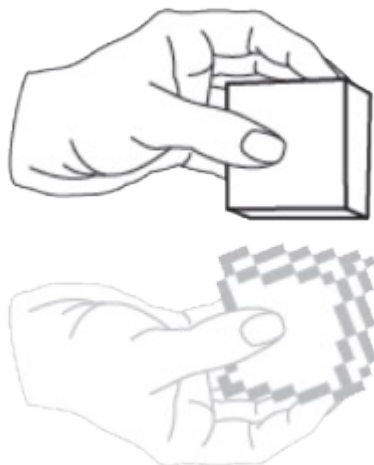

More direct/physical

Digital interaction is evolving

Why does it matter how we interact with technologies?

D+E
CHILDREN &
TECHNOLOGY

THE UNIVERSITY of EDINBURGH
Moray House School
of Education

Why does it matter how we interact with technologies?

- (New business models $$)

- More accessible?

- More fun?

- Learning benefits?

Role of physical interaction in early numeracy

1 + 8 =

2 + 7 =

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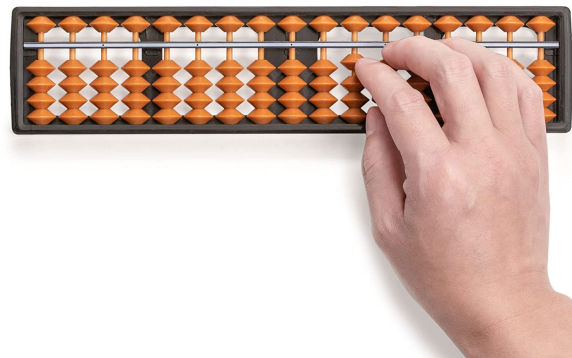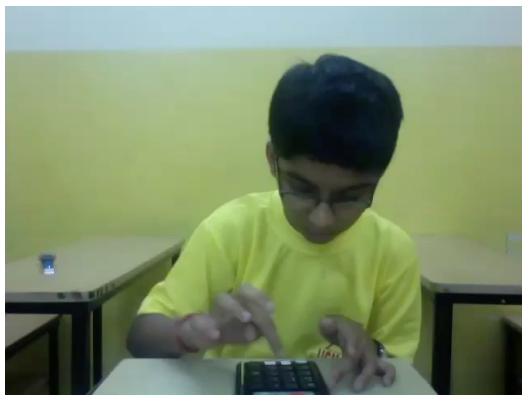of Education

Why does 1 + 8 make the same as 2 + 7 ?

What do their hands tell you?

Embodied Learning

- Gestures contribute evidence that cognition is *embodied* –
  inseparably linked to how we sense and move in the world.

- This has important implications for how particular sensory and
  action experiences shape the way we think and learn –
  embodied learning.

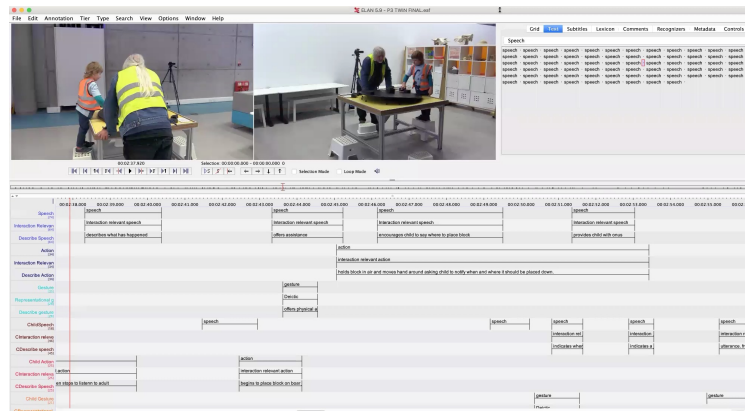# What materials shaped how this child is thinking?

Embodied Learning in early years science

Method

- Examine children's and adults' interaction with exhibits and their communication after.

THREE WAYS
EMBODIED LEARNING
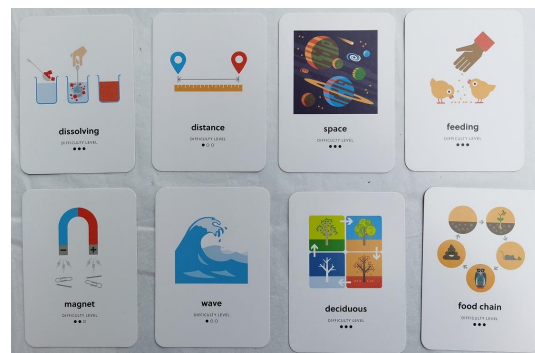CAN IMPROVE
INFORMAL SCIENCE LEARNING
Findings from the Move2Learn Collaboration

Move2Learn

1. Encourage children to communicate in diverse ways

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1. Encourage children to communicate in diverse ways

STEM Charades: communicate STEM ideas through gesture and speech

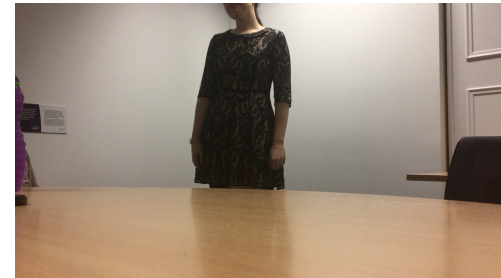# 1. Encourage children to communicate in diverse ways

síntomas

DIFICULTAD

● ● ●

STEM Charades: Covid Edition. Spanish version. Free download

https://www.de.ed.ac.uk/sites/default/files/2021-08/CovidCards_OnlineVersion_23July2021.pdf
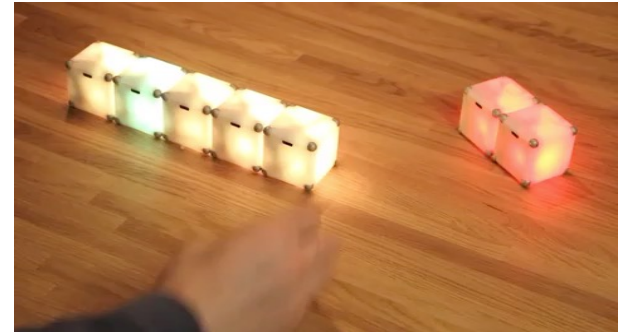
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2. Encourage adults to communicate through gesture

(more purposefully)

3. Design experiences to encourage meaningful actions

Embodied Balance

Numbuko

In summary…

- Learning sciences research is revealing the importance of sensory and action experience in how we think and learn (Embodiment)

- There are implications for how we interact with children to support learning (e.g. gesture)

- There are implications for how we design new experiences to support learning (e.g. embodied technologies)

Implications for Computing Education in the early years?

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1. Encourage children to communicate in diverse ways

How might children communicate their understanding through language, gesture, actions, drawings, etc?
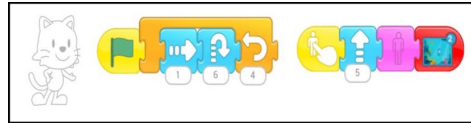
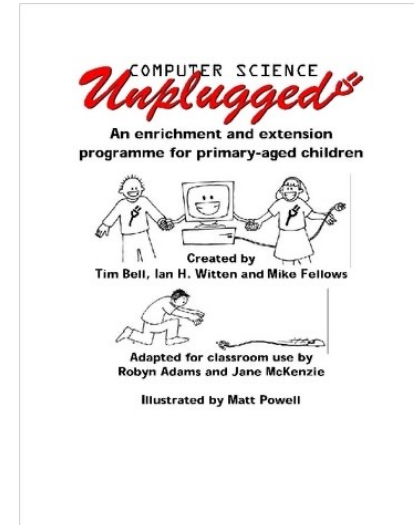## 2. Encourage adults to communicate through gesture

(more purposefully)

How might teachers use their hands to helps children understand different concepts?

Algorithm

3. Design experiences to encourage meaningful actions

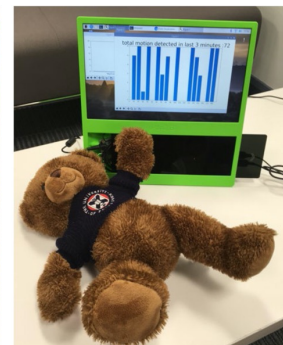*What sensory and action experience might help children understand computing concepts?*

3. Design experiences to encourage meaningful actions

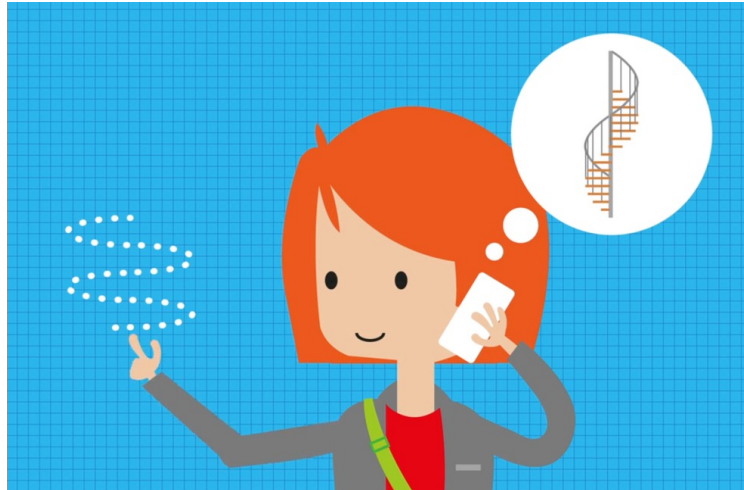*The digitalized world around children provides a powerful pedagogical resource.*

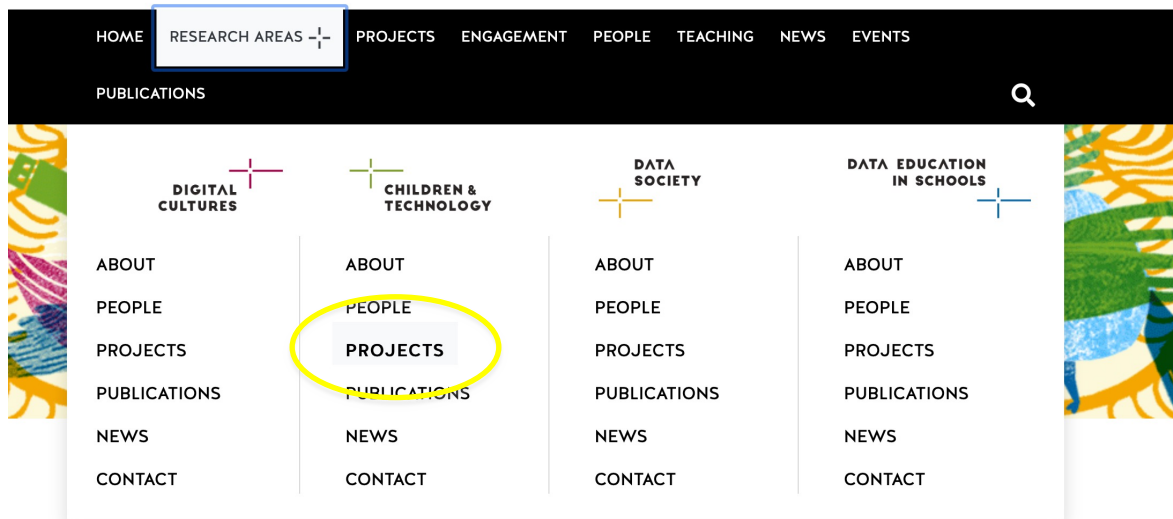# Potential to help young children understand personal data

Why do we gesture?

- And what has that got to do with children and technologies?

Gracias!