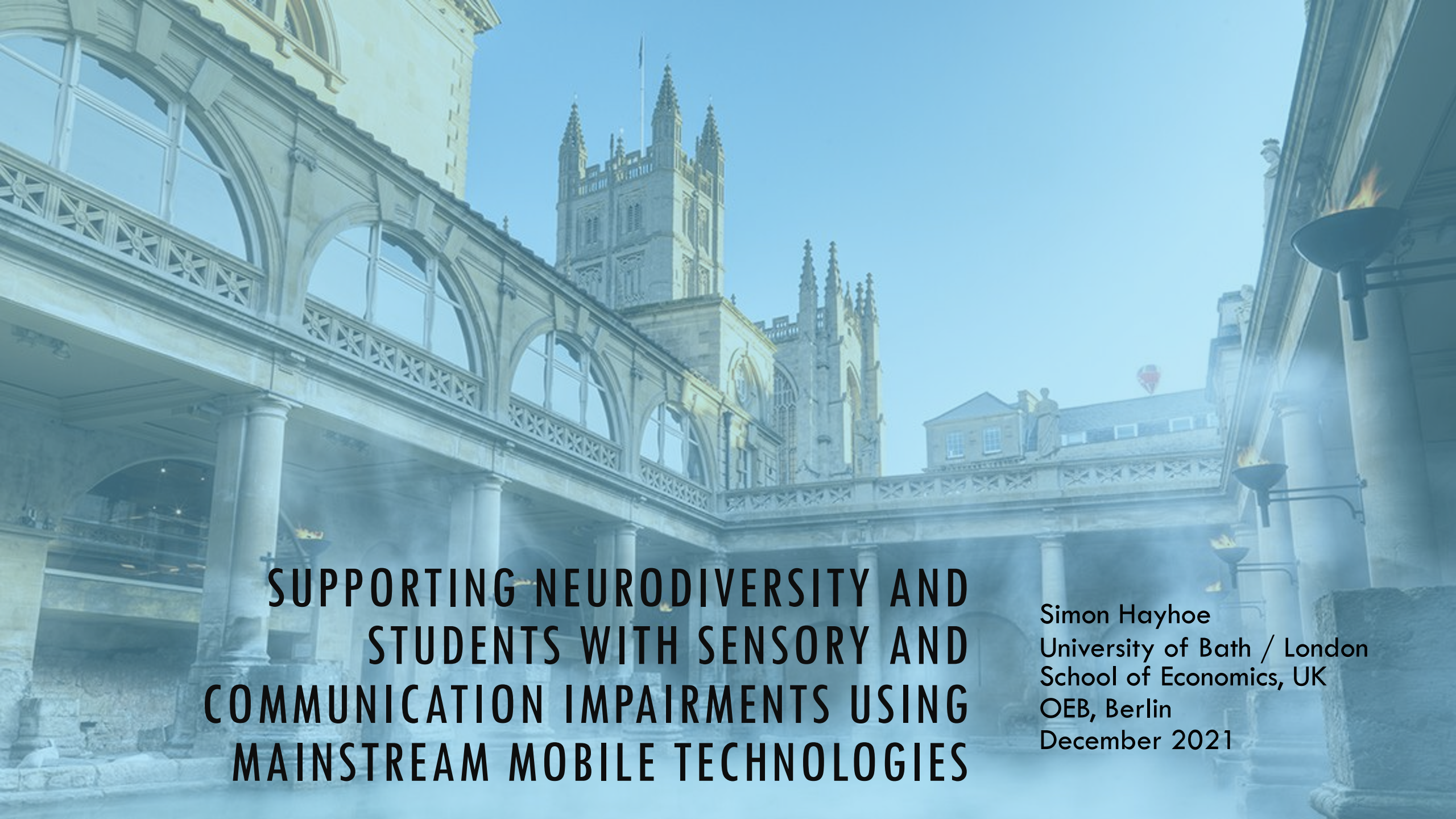


SUPPORTING NEURODIVERSITY AND STUDENTS WITH SENSORY AND COMMUNICATION IMPAIRMENTS USING MAINSTREAM MOBILE TECHNOLOGIES

Simon Hayhoe
University of Bath / London School of Economics, UK
OEB, Berlin
December 2021

AIMS AND OBJECTIVES

Start a debate on how neurodiversity can be supported by educational technology

Demonstrate a revolution in educational accessibility as a result of mobile technologies and m-learning

Start you thinking about your practice, and the development of mobile hardware and apps to become more inclusive

OUTCOMES

This presentation is designed to produce three outcomes:

- You will learn about mainstream mobile technologies, apps and operating systems
- You will have considered strategies for supporting students with specialised needs
- You will better understand the challenges that neurodiverse students and students with sensory and communication impairments face

WHAT IS NEURODIVERSITY?

Education presumes a **hypothetically normal student** who reads and writes *normally*

Learning difficulties have been associated with abnormality and lower learning ability

- E.g. dyslexia, autistic spectrum disorder

Language matters and drives learning capability

Neurodiversity focuses on learning differences, not on a perceived deficit in learning

This leads to a technological challenge

- Technology has been divided into normal and assistive/accessible technology

FIRST GENERATION - MEDICAL TECHNOLOGY

Mostly involved separation in homes, asylums or institutes

Defined according to impairment

Highlighted issues of infirmity, incapacity, injury or impairment

Aim to look after ill people:

- To relieve physical deficit
- Hence the term Handicap

Physical disabilities targeted

No thought given to intangible impairments or difficulties

Hayhoe, S., 2015. Philosophy as Disability & Exclusion. Charlotte, NC: IAP.

The four worst cases in the Broghton Hospital.
The sepoy on the extreme left,in the chair is the most severe case in h
the whole hospital,but is now well on the way to recovery. The sepoy
smoking has a fractured arm and elbow,caused by an explosibve German
bullet.,while the two Gurkhas on the right were both wounded by a German
shell,one losing his leg and the other an arm and had his leg shattered

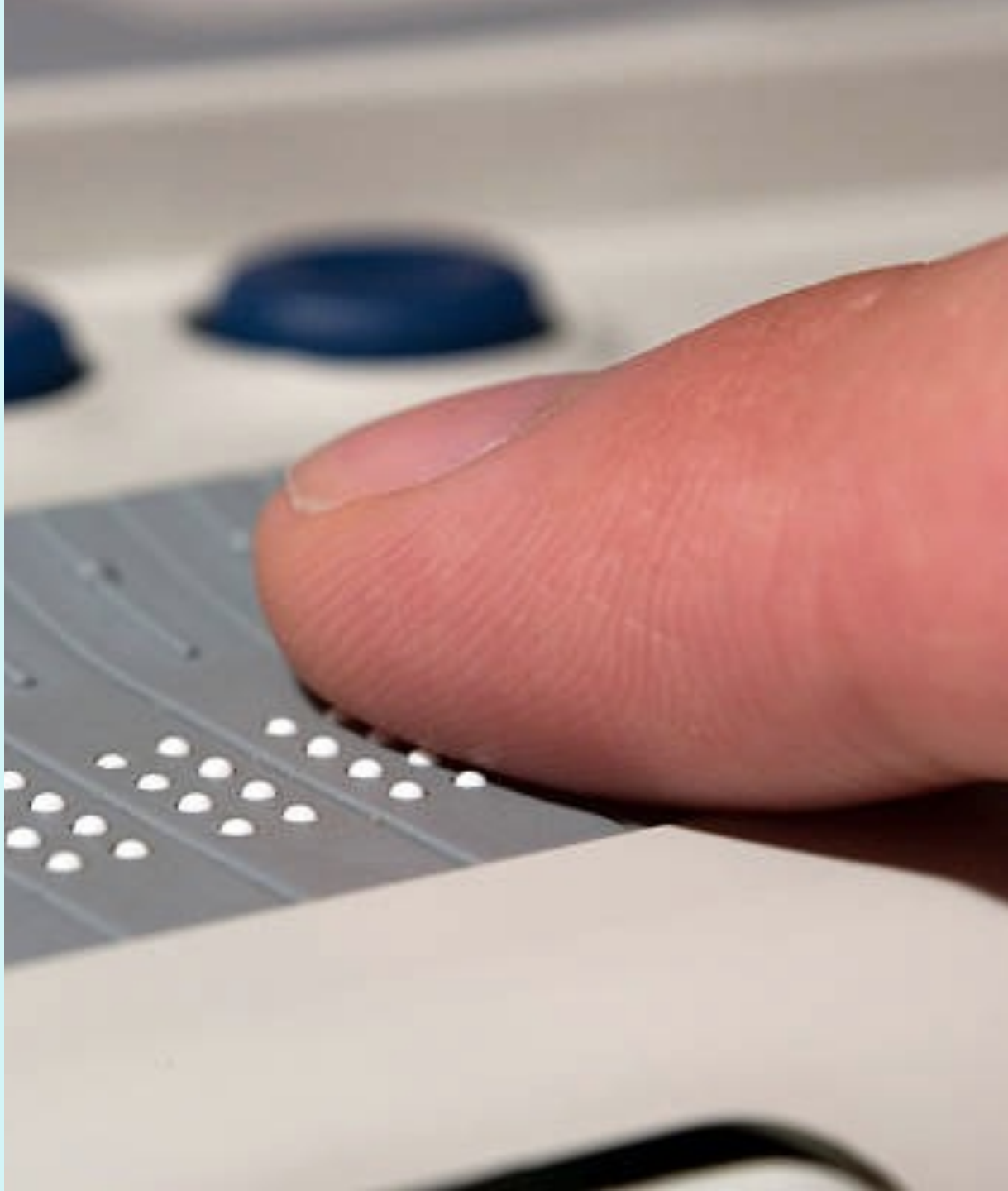
SECOND GENERATION - TASK ASSISTANCE

Aim still to overcome deficit
Integrated in environment but not in tasks
More technology focused:

- Emphasis moved from medical to social and cultural task assistance

Often associated with education or assisted living: mobility, reading, writing or hearing
Most famously, assistive technology

- A mixture of mechanical & electrical technologies



THIRD GENERATION - TASKS AND ENVIRONMENT

Based on mainstream **m-Learning** – mobile learning, or learning with a mobile device

Roughly, where we are now in the mainstream

Inclusion based on providing fuller equality with others – especially in tasks and practice - practice focussed

Emphasis again on technology, but this time on inclusive technologies:

- *Mainstream technology that can be used with either no or minimal adaption by a person with a disability as an accessible technology. It is also seen as technology that provides social inclusion, such as communication and interaction, for people with disabilities*

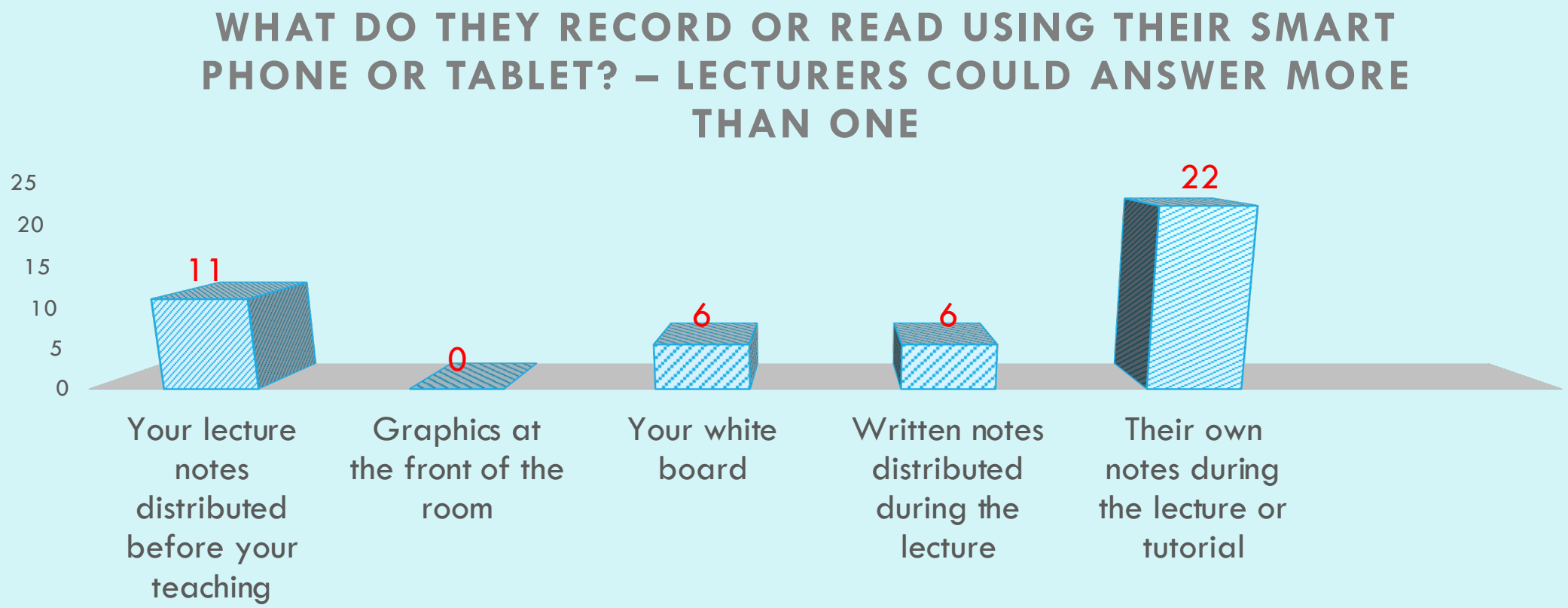
Hayhoe, S. (2019). Inclusive technical capital in the twenty-first century. In S. Halder, & V. Argyropoulos (Eds.), *Inclusion, Equity and Access for Individuals with Disabilities: Insights from Educators across World* (pp. 223-241). Singapore: Palgrave Macmillan. https://doi.org/10.1007/978-981-13-5962-0_11

WORKING WITH UNIVERSITY STUDENTS WITH ADDITIONAL NEEDS IN LONDON

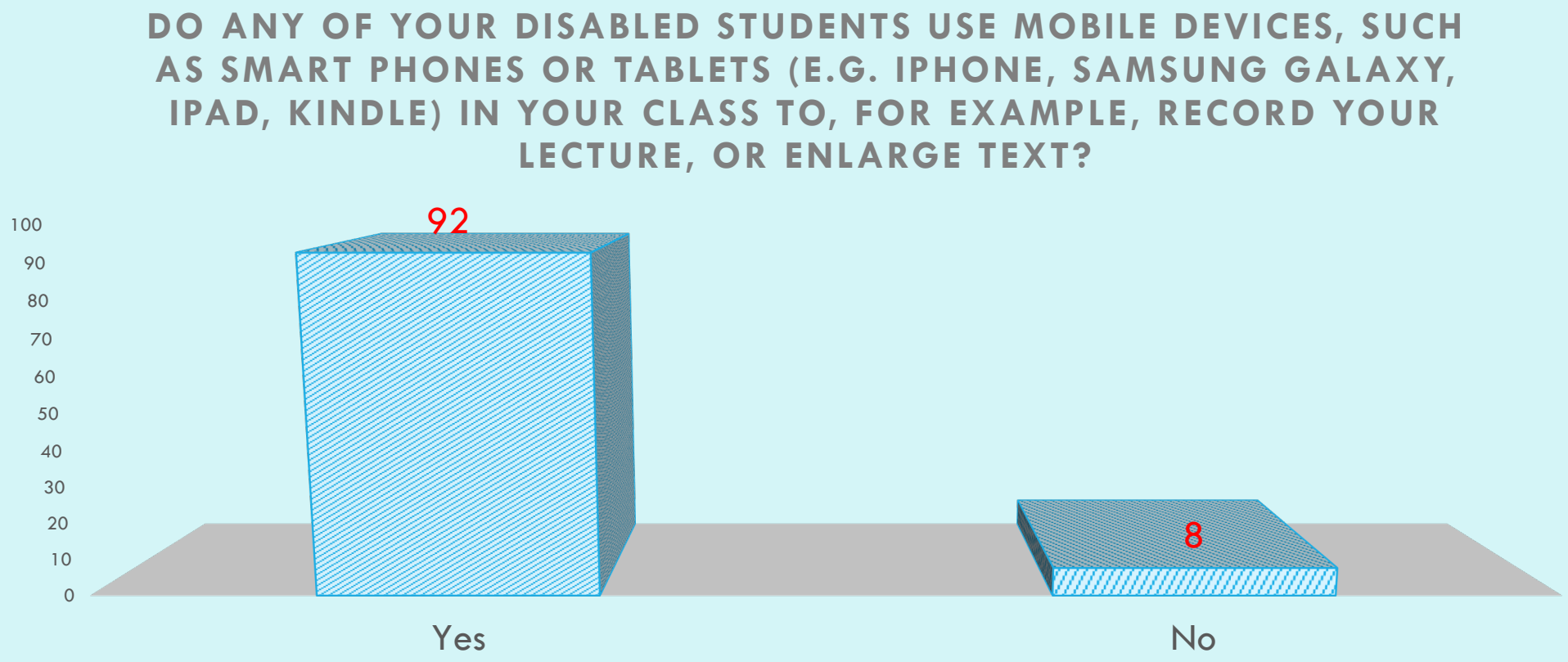
London School of Economics (LSE)

Funded by a Learning Technologies Innovation Grant from the LSE.

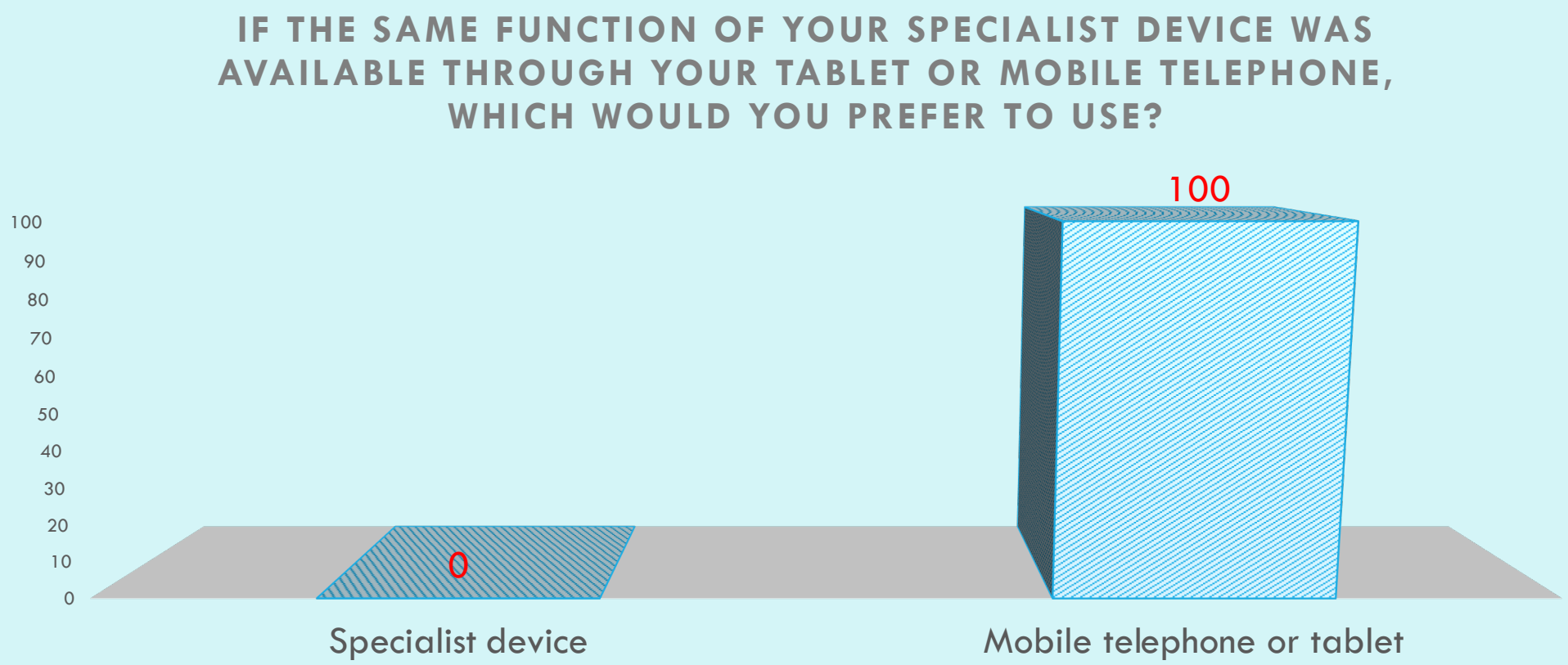
ACADEMICS ASSUME MOBILE DEVICES ARE BEING USED TO RECORD STUDENTS' OWN RECORDED NOTES



THE MAJORITY OF STUDENTS USE MOBILE DEVICES



ALL STUDENTS WHO EXPRESSED A PREFERENCE SAID THEY PREFERRED MOBILE DEVICES



MOODLE STATISTICS SHOWED A LACK OF DESIRE TO BE SEPARATED, BUT A DESIRE TO SHARE

The programme was run at the LSE from October 2014 to January 2015

Video recorded face-to-face classes were sparsely attended

Teaching materials, tutorials and videos of the sessions were uploaded on Moodle

Number of students registered on the Moodle system (n = 24)

All but 2 of the students accessed the material

Materials were accessed well into the new year after the course had finished

Websites on apps and sharing tips were popular

OBSERVATION: Mobile technology became a powerful tool of ownership

MODEL OF *im-Learning*

im-Learning is inclusive mobile learning, where the student focuses on their most appropriate mode of learning

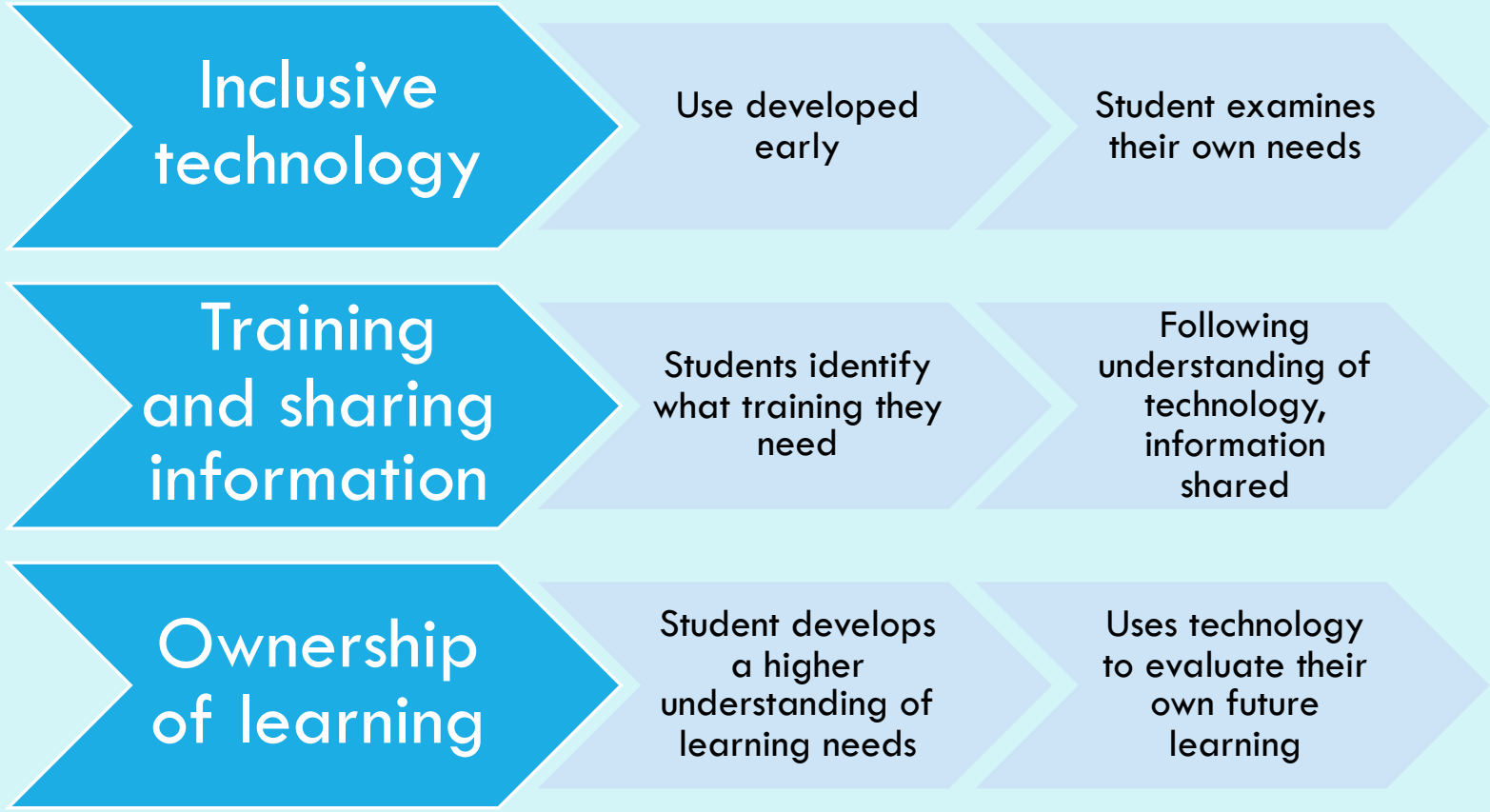
Generally, students don't want to identify as having a disability

- Instead, students want to find a method of learning that suits them best

Students focus on using mainstream mobile devices, and are not separated from their peers technologically

Furthermore, students want to own their learning, this means swapping tips about the best apps, training themselves and training eachother

MODEL OF im-Learning AS A PROCESS



Danke schoen
und
fragen?