

## [Simon Hayhoe](#)

# A philosophy of inclusive technology for people with special needs, and its application in a course using mobile computing devices for undergraduates at the London School of Economics

## Conference paper

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**A PHILOSOPHY OF INCLUSIVE TECHNOLOGY  
FOR PEOPLE WITH SPECIAL NEEDS, AND ITS  
APPLICATION IN A COURSE USING MOBILE  
COMPUTING DEVICES FOR UNDERGRADUATES  
AT THE LONDON SCHOOL OF ECONOMICS AND  
CANTERBURY CHRIST CHURCH UNIVERSITY, UK**

**Presentation to the conference EDU Learn 2014, 6th  
International Conference on Education and New Learning  
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**Canterbury Christ Church University & London School of  
Economics, UK**

# Introduction

- This presentation has three aims:
  1. stimulate discussion on the need for and direction of technology to make it more inclusive
  2. provide an introduction to the role of mobile devices in the education of people with impairments and learning difficulties
  3. develop a philosophical understanding of the interplay between impairment, learning difficulties and technology

# The Initial Problem

- Traditional assistive technologies are social barriers to educational inclusion
  - Computing and Information Systems (CIS) is guided by able bodied people
  - devices designed on guess work and not on experience
  - CIS can stereotype special needs
- Traditional assistive hardware is:
  - expensive, immobile, awkward and restricts movement
  - ugly and diminishes the confidence of students with special needs
- Lack of Discussion in higher education in particular

# Traditional Assistive Technology



**ASSISTIVE TECHNOLOGY**

# The Proposed Solution

- Develop inclusivity in mainstream technologies
- This concept has developed further with mobile devices
  - Tablets and smart phones designed with inclusive features and apps
  - Many mobile devices can adapt mainstream functionality to inclusion
    - E.g. MP3 functionality for blind and dyslexic students
- Microsoft founder, Bill Gates, states:

“Our vision is to create innovative technology that is accessible to everyone and that adapts to each person's needs.”

# Mobile Inclusivity



Blindness



Deafness



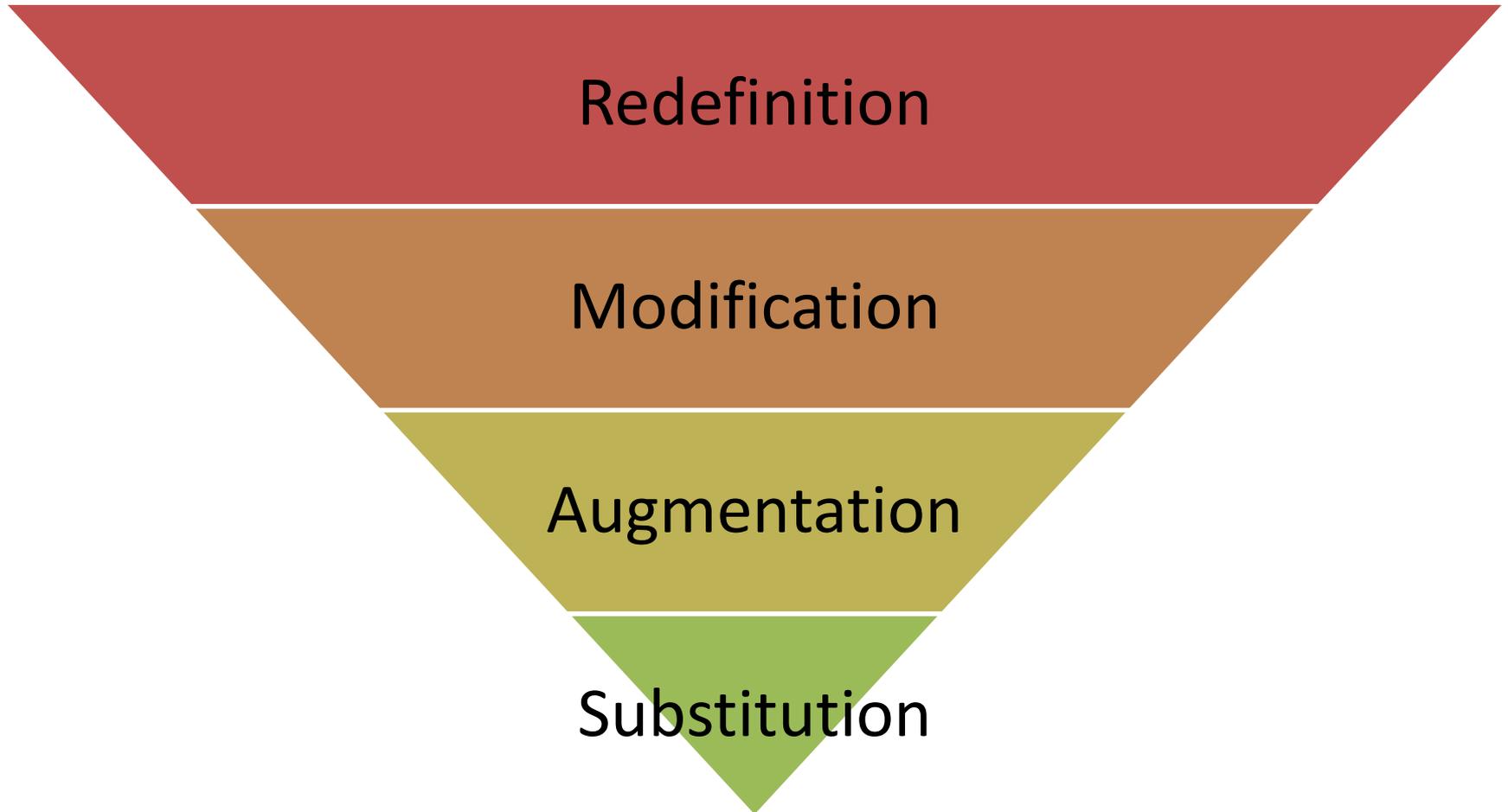
ASL app. Apple.com ©

Remodeling assistive technology to inclusive technology

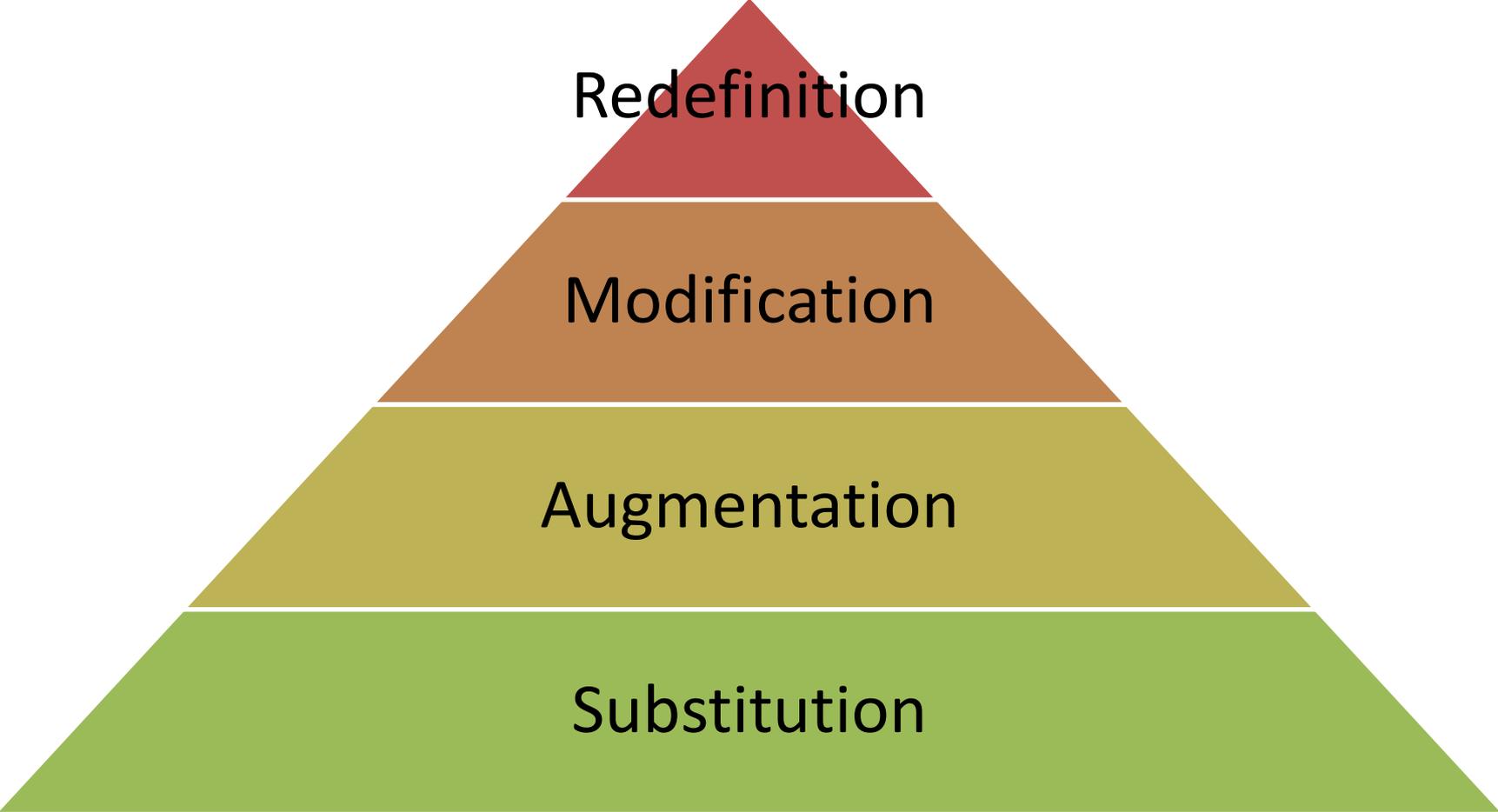
# **SAMR MODEL OF EDUCATIONAL TECHNOLOGY**

	<b>Transformation</b>		
Redefinition	Technology allowing for the transition of training in new tasks through AT/IT	Customised technology that allows teachers and students mobility, writing facilities, reading facilities, hearing facilities	<i>Traditional assistive technology</i>
Modification	Technology allows for significant redesign of tasks	Technology used in conjunction with normal learning technologies	
Augmentation	Technology substitutes as a direct tool, with functional improvements	Accessible settings, such as enhanced zoom functions, voice recognition, differing gestures and alternative input and output peripherals	<i>Inclusive technology</i>
Substitution	Technology acts as a direct tool substitute, with no functional change	Tablet computers, smart phones, mp3 players and multi media devices with differing inputs and outputs	
	<b>Enhancement</b>		

# Traditional Model of Assistive and Inclusive Technology



# The Ideal Future



Redefinition

Modification

Augmentation

Substitution

London School of Economics & Canterbury Christ Church University\*

# **STUDY SKILLS COURSE**

# Course Structure (CUPED)

- **Categorise** technologies (staff and students)
- **Use** of technologies (staff and students)
- **Philosophise** technologies (staff only)
- **Evaluate** current use of technologies (staff and students)
- **Discuss** sources of information (staff and students)

# Initial Scheme of Work

Lecture	Content	Adjustments
<b>1 Basic skills</b>	<ul style="list-style-type: none"><li>• Introduction to the course and study skills</li><li>• Discussion of study skills</li><li>• Introduction to the guidelines</li><li>• Sources of information</li></ul>	Accessible rooms, materials made into accessible PDFs, appropriate lighting, rooms with appropriate noise reduction
<b>2 Lecture skills</b>	<ul style="list-style-type: none"><li>• Application of study skills</li><li>• Demonstration of tools and functions</li><li>• Formulating an action plan</li></ul>	
<b>3 Support</b>	<ul style="list-style-type: none"><li>• Practising study skills</li><li>• Devising an individual plan</li></ul>	
<b>4 Evaluation</b>	<ul style="list-style-type: none"><li>• Evaluation and feedback session</li><li>• Re-practicing of any skills</li></ul>	

# Other Aspects of Teaching Considered

- **Learning Outcomes (RAD):**
  - **Reflect** on good practice
  - **Analyse** technologies using critical faculty
  - **Demonstrate** use of inclusive technologies
- Learning resources – BYOD
- Ethics - guidelines enshrining rights and responsibilities
- Assessment – formative assessment, with no grade

Funding sources, and contact information

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- Funded by a Learning Technology Innovation Grant, Centre for Learning Technology, London School of Economics, with match funding from Canterbury Christ Church University
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