

# Realising Potential through Enabling Technologies

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# Poll:

**Out of 5, how tech-savvy are you?**

5 - I'm a tech geek, love it

4 - I enjoy tech and see the benefits

3 - I would like to know more but I'm not very confident

2 - I can live without tech but see its uses

1 - I hate technology and want to live in a tech free world



**Technology embedded education**

# Does technology have a positive impact on learning?

Studies consistently find that digital technology is associated with moderate learning gains. Technology should support pupils to work harder, for longer or more efficiently to improve their learning.

(Sutton Trust-EEF Toolkit, 2014)

# Does technology have a positive impact for dyslexic pupils?

Computers have been used to help dyslexic learners for 30 years.

“ Our results indicate that computer-readers [text to speech] are important compensatory aids that can enable many people with dyslexia to perform more effectively in reading-related tasks associated with school and work.”

Elkind et al (1993)



# Life-long benefits to appropriate technology use

- Improved motivation
  - More independence
  - Improved skills and output
- More likely to succeed throughout education & in the workplace
- 20% of students using A.T.



# What is assistive or enabling technology?

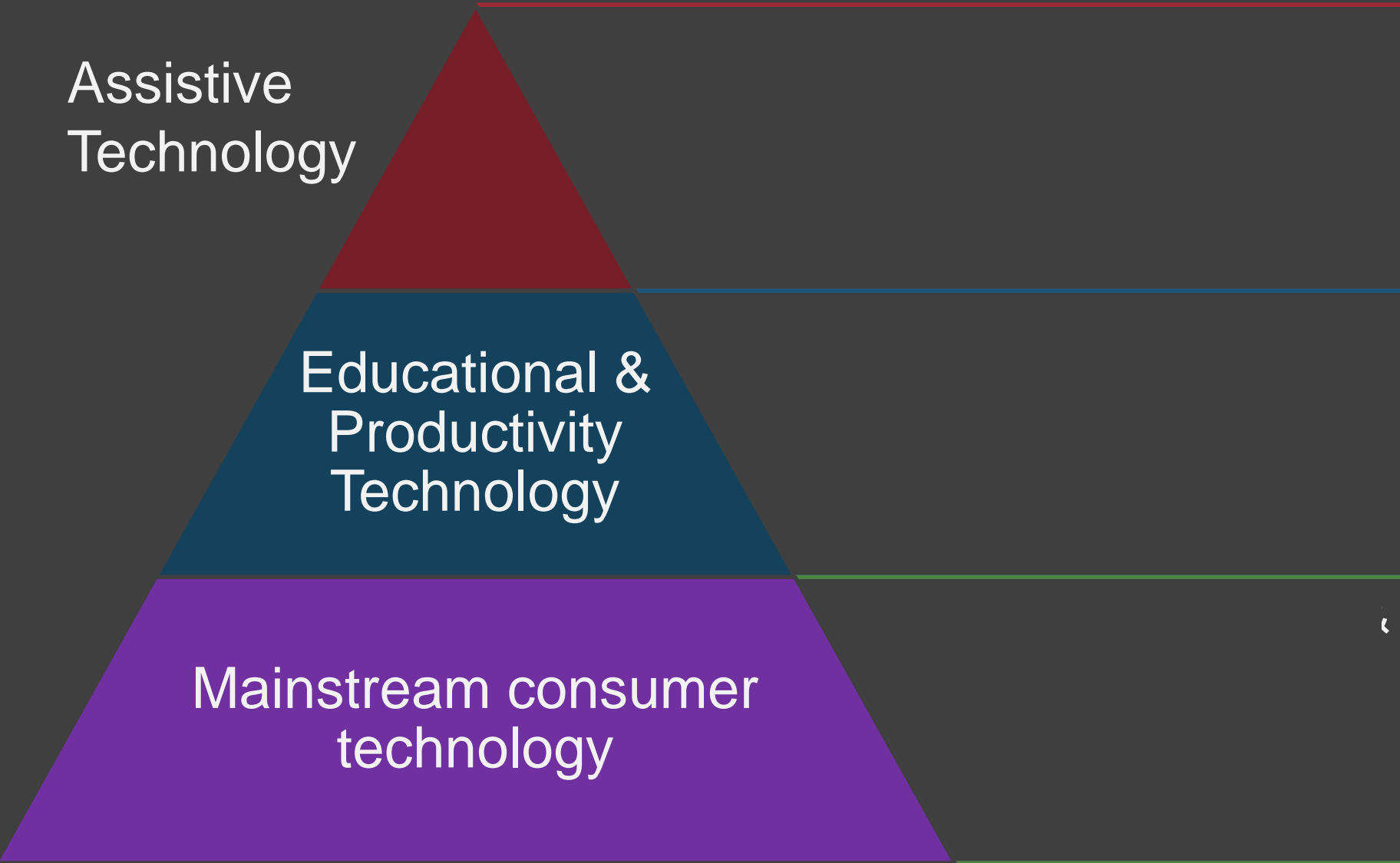
“any item, piece of equipment, or product system, whether acquired commercially or off-the-shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities”

British Assistive Technology Association

**Enabling technology** “provides the means to generate giant leaps in performance and capabilities of the user”

# Assistive or Enabling?

Assistive  
Technology



Educational &  
Productivity  
Technology

Mainstream consumer  
technology



# But any technology solutions must lessen difficulties & provide equal access

‘a mismatch can hamper the students ability  
to use coping strategies to manage their  
dyslexia’ Stacy (1998)

- Not all soft/hardware will help all dyslexic users
- Some soft/hardware will frustrate some dyslexic users

➔ As with any user!

# Dyslexia-Friendly Technology: all about the design (Rowais et al 2014)

Short, simple tasks, reinforcing learning

Support diversity & preferences

Structured & realistic tasks

Simple language & readable fonts

Multisensory combining audio & visual

Sufficient & adaptable timing

# Technology acceptance

it's not what  
the software does.  
it's what the  
user does.

@hugh

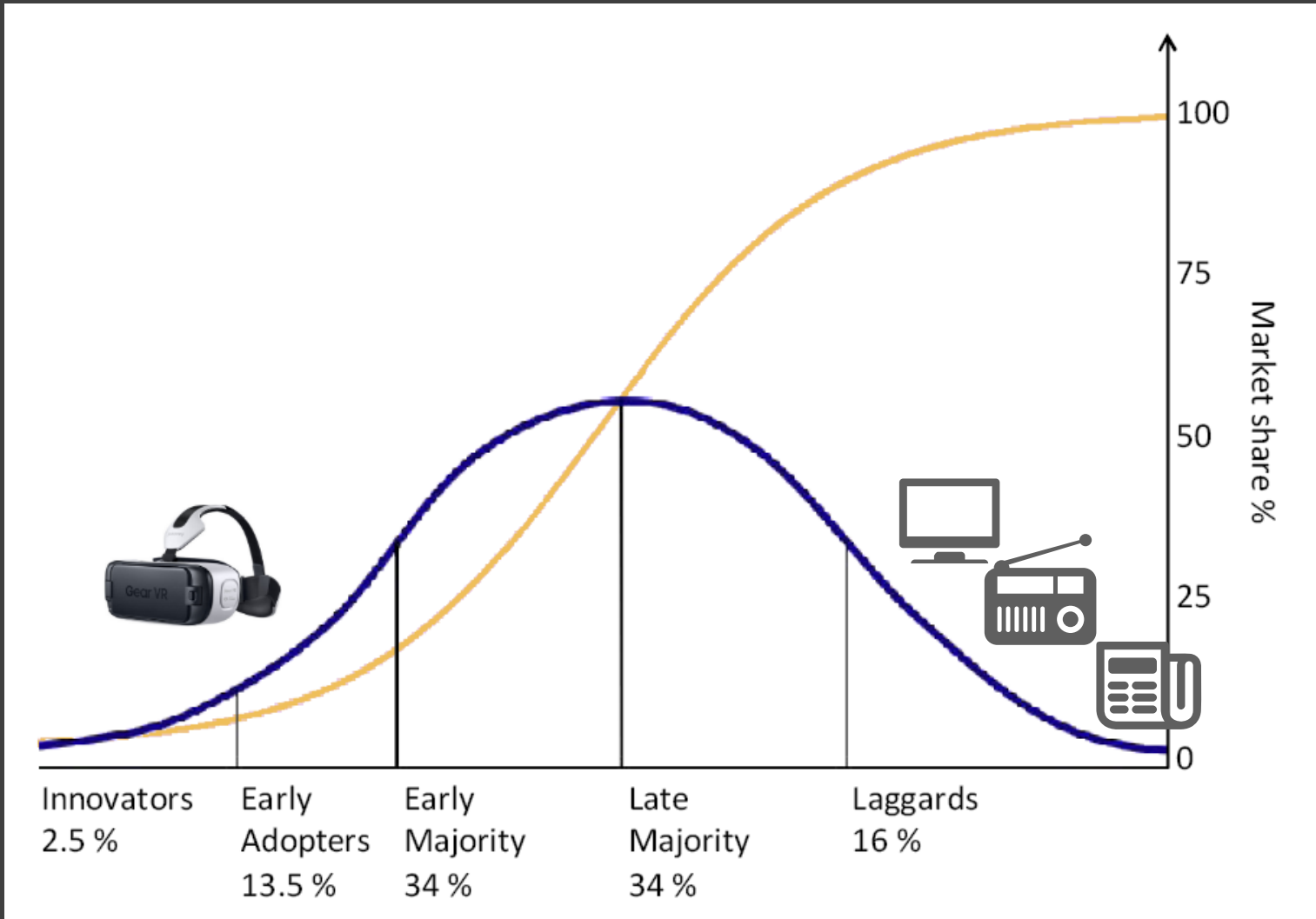


# Why are we worried about acceptance?

- 25% - 75% of assistive technology is “abandoned”
- People who abandon technology are less likely to try it again in the future
- Decision makers are less likely to commit to resources in the future



# Roger's diffusion of innovation



# Technology Acceptance Model for assistive technology (Deibel, 2011)

**User's environment**

Motivation × Need

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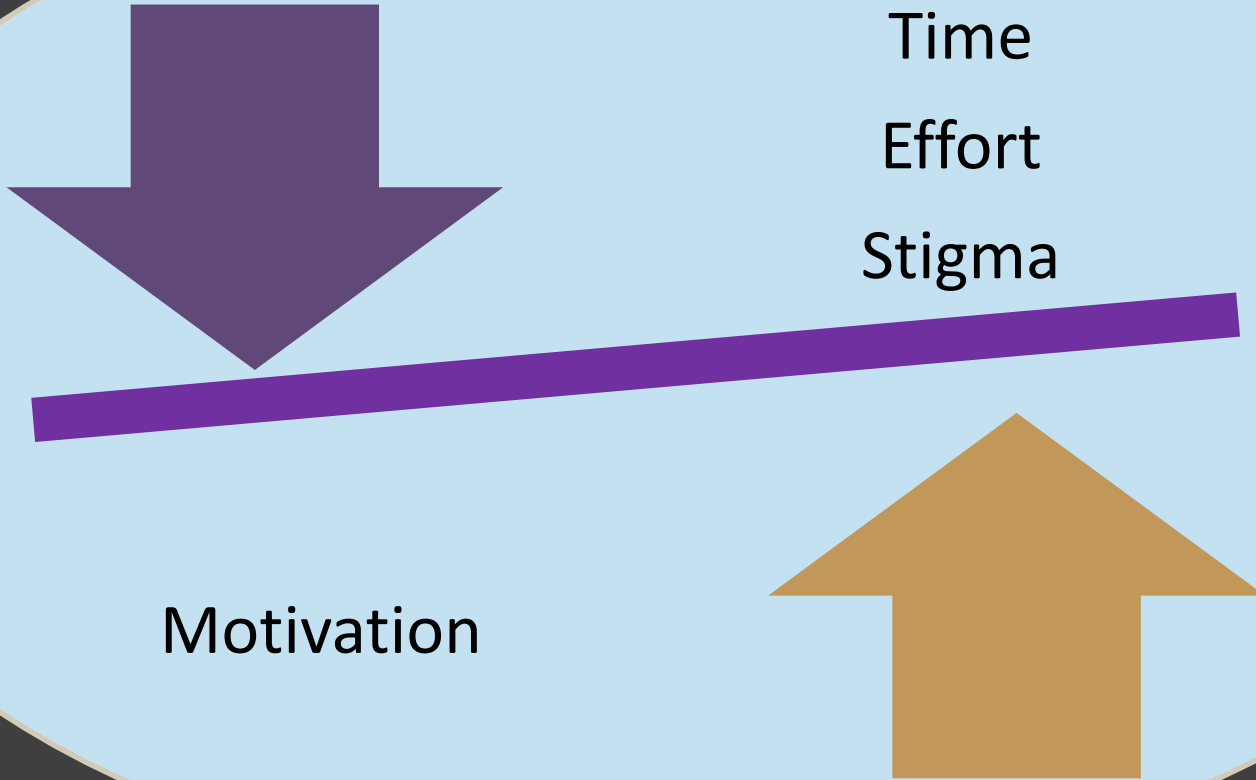
Time × Effort × Stigma

# Therefore...to embed technology within coping strategies....

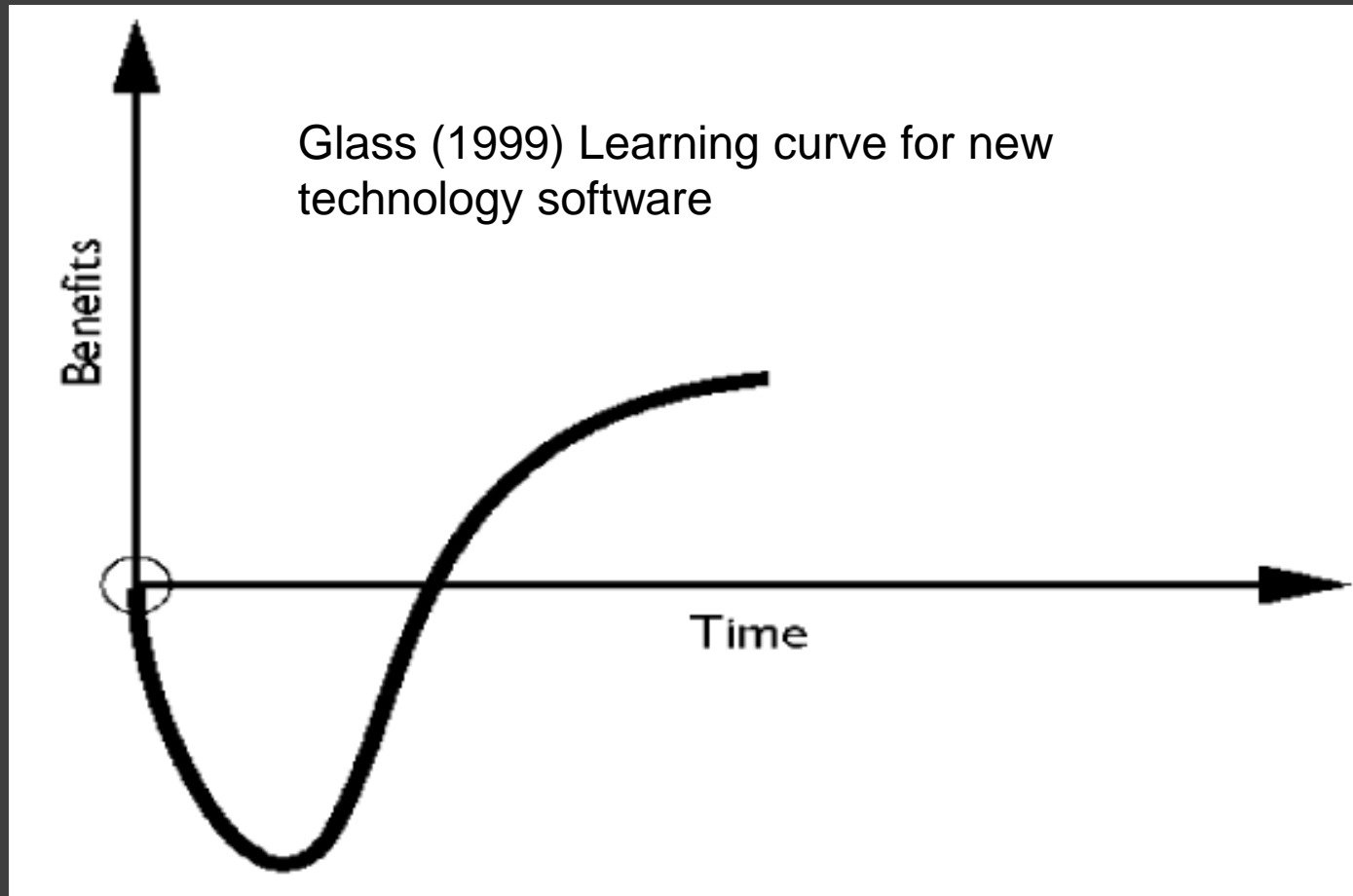
## User's environment

Time  
Effort  
Stigma

Motivation



# Is training the key?



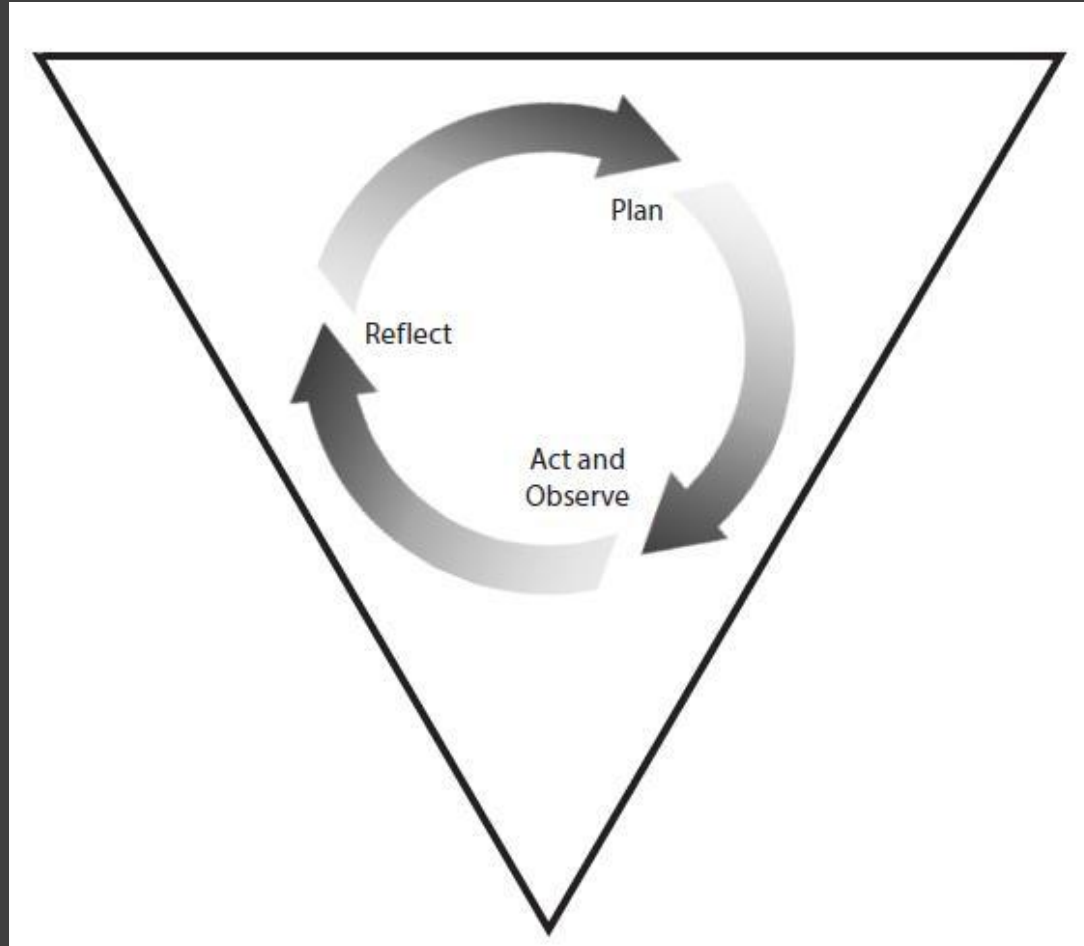
You Tube





# In the context of metacognition...

**Affects**  
(Feelings,  
Attitudes,  
Beliefs and  
Assumptions)



**Motivation**

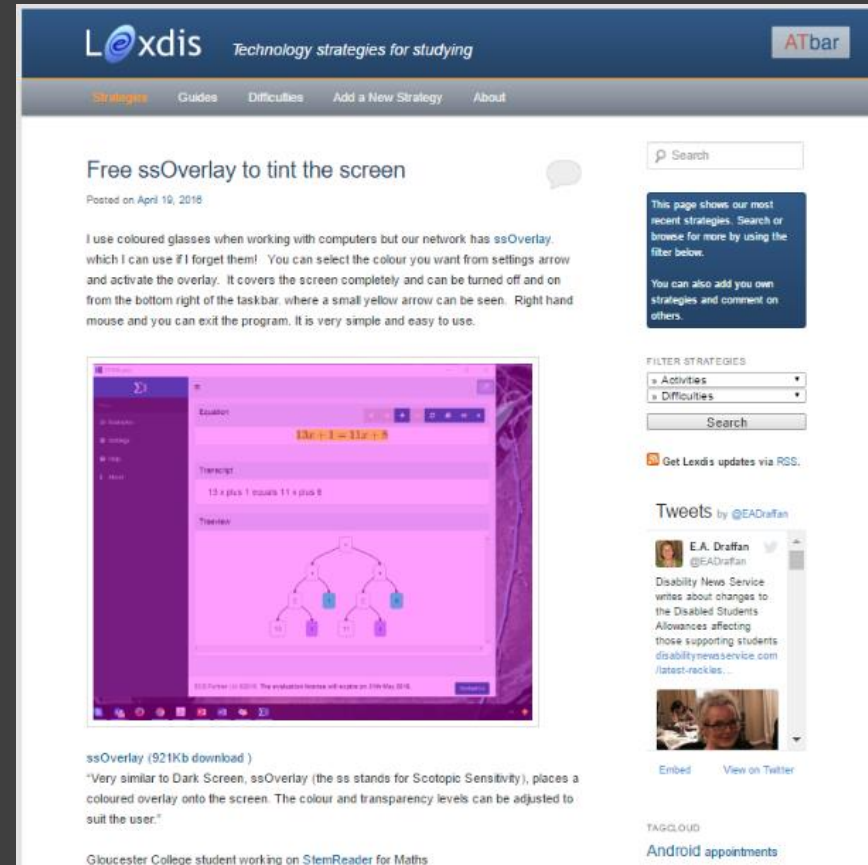
**Strategies**

From R Phelps & A Graham, (2013) "Technology Together: Whole-School Professional Development for Capability and Confidence", ITSE

# Technology Strategies (LexDis.org.uk)

## But don't leave it too late

“I did feel like I was doing 2 courses and that was, frankly, too much. I had to stay with my old bad habits because I just didn't feel I had the time to take out to learn something new to help me. It was a vicious circle, really.” (Stephanie, LexDis final project)



The screenshot shows the LexDis website interface. At the top, there is a navigation bar with the LexDis logo and the tagline "Technology strategies for studying". Below the navigation bar, there are several menu items: "Strategies", "Guides", "Difficulties", "Add a New Strategy", and "About". The main content area features a blog post titled "Free ssOverlay to tint the screen" posted on April 19, 2016. The post text describes the use of ssOverlay, a software that allows users to tint their screen with various colors to reduce eye strain. It mentions that the user has used colored glasses and that ssOverlay is a free alternative. The post includes a screenshot of a Windows desktop with ssOverlay applied, showing a math problem and a tree diagram. Below the screenshot, there is a download link for ssOverlay (921Kb) and a description of the software. The right sidebar contains a search bar, a section for "This page shows our most recent strategies", a "FILTER STRATEGIES" section with dropdown menus for "Activities" and "Difficulties", a "Search" button, a "Get Lexdis updates via RSS" link, and a "Tweets by @EADraffan" section featuring a tweet from E.A. Draffan about Disability News Service. At the bottom of the page, there is a "TAG CLOUD" section with the tag "Android appointments" and a footer with the text "Gloucester College student working on StemReader for Maths".

# STREET Model for selecting & evaluating assistive technologies ([Draffan et al, 2016](#))

Strengths

```
graph TD; Strengths --> Tasks; Tasks --> Resources; Resources --> Expertise; Expertise --> Environment; Environment --> Tools;
```

Tasks

Resources

Expertise

Environment

Tools

# STREET Model for selecting & evaluating assistive technologies ([Draffan et al, 2016](#))

Strengths

Can type & use mouse

Tasks

Reading, proof-reading

Resources

Individual licences / networked?  
Free / Paid?

Expertise

Staff confidence with technology?  
Technical support?

Environment

Classroom & exams






















Tools

Text to speech



# Built-in Enabling Technologies

<https://bdatech.org/dyslexia-awareness-week-2018>

	Windows / Office	Mac	Chrome	iOS	Android
Text to speech			With extension		
Colour filters / background	Limited	Limited	With extension		Limited
Speech recognition					
Predictive text	Touch-screen	Touch Bar	With extension		
Spellcheck / dictionary					Spell check only
Calendar / Reminders					

Document1 - Word

Abi James

File Home Insert Draw Design Layout References Mailings Review View Help ACROBAT Tell me what you want to do

Spelling & Grammar Thesaurus Word Count Read Aloud Check Accessibility Translate Language New Comment Delete Show Comments Ink Comment Pen Eraser Track Changes Show Markup Reviewing Pane Accept Reject Previous Next Compare Block Restrict Hide Linked Authors Editing Ink Notes OneNote

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 17

maik lots of errirs wen I tipe.

Wen they got to the house, the which let them in.

I sore the see form the door of the in.

The boys were board with sitting watching the bored game.

Their was a not in her hare that I had too cut threw it but she scremed really really loudly.

Page 1 of 1 59 words English (United Kingdom)

# Demonstration of Word 365

# Example: why isn't everyone using text to speech in the classroom?

It costs too much

It's not reliable

My pupils can't type fast enough

I don't know how to use it

My pupils don't like it

Teachers use books & worksheets



# But...

- Free, low-cost or commercial tools are available
- Training is important for **everybody**, staff and pupils.
- Not everyone likes technology. Find your tech champions,
- Free scanning apps & RNIB Bookshare help with digital learning resources

# Impact and training AT apps for dyslexic learners (Nordström et al, 2018)

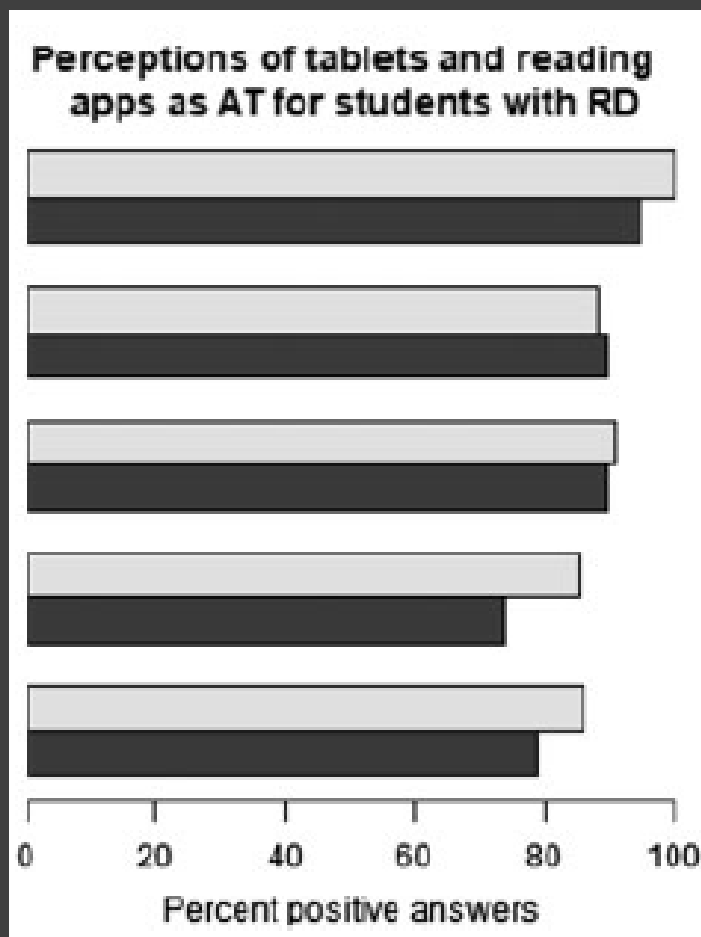
Enhance learning opportunities

Enhance reading development

Enhance text comprehension

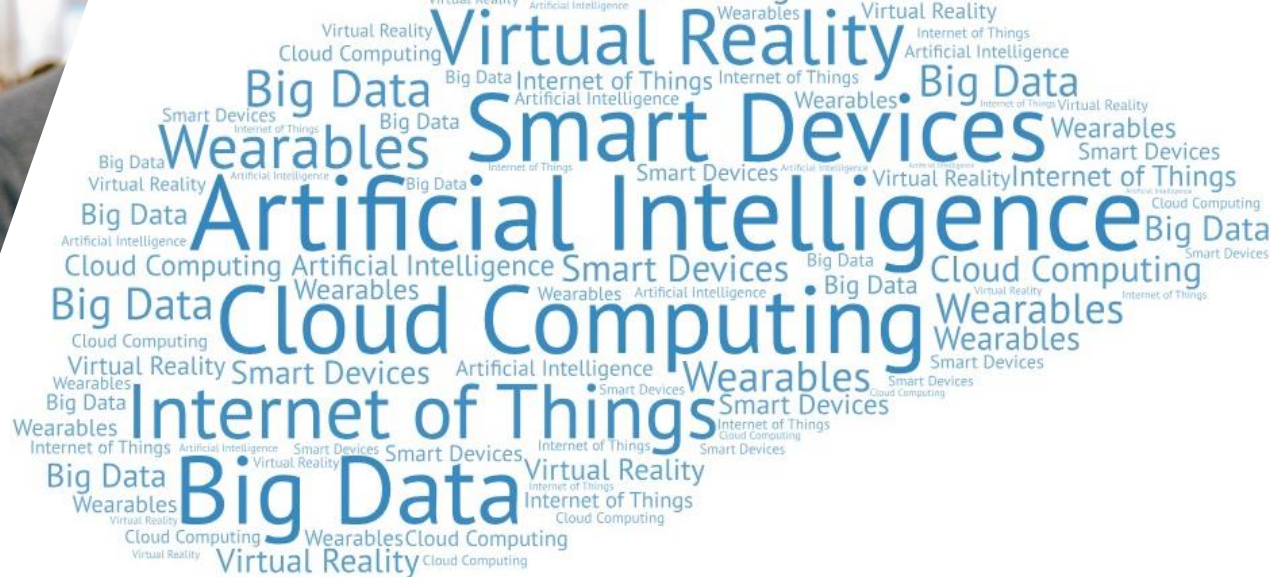
Improve ability to write text

Assist educational practice



- 80% primary & 57% secondary pupils felt the TTS assist reading skills
- But extensive training & support was required. Some students struggled to use apps
- 70% continued to use AT after project

**New horizons for  
the 21<sup>st</sup> Century**



# New horizons for the 21<sup>st</sup> Century





# Enabling technology in the 21<sup>st</sup> Century

*It's no longer about what  
the technology can do.*

*It's about what we are  
trying to do and where and  
when we want to use it.*

# Final thoughts

## Keep it simple!

- Supplement current strategies
- Use what's already in your pocket

## Highlight benefits

- Focus on motivation
- Accept that not everyone will want to use technology

## Work together

- Pupil/teacher ---- user/trainer partnership
- Whole-organisation approach

# Thank you

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Learning