

Underwood Trust Annual Lecture

Big CACTUS

Clinical and cost effectiveness of computerised therapy for aphasia: findings from an RCT

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Funded by

NHS

National Institute for
Health Research

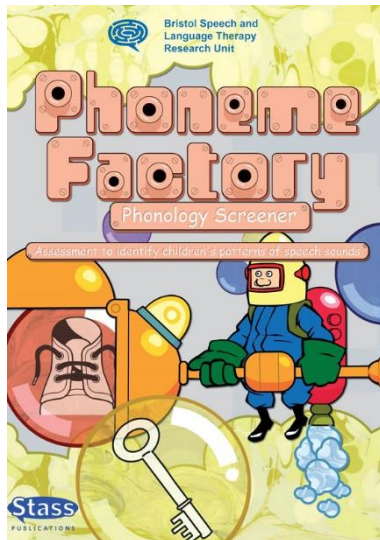
@RPalmerSLT

THE TAVISTOCK TRUST FOR APHASIA





**Bristol Speech and
Language Therapy
Research Unit**



Practise

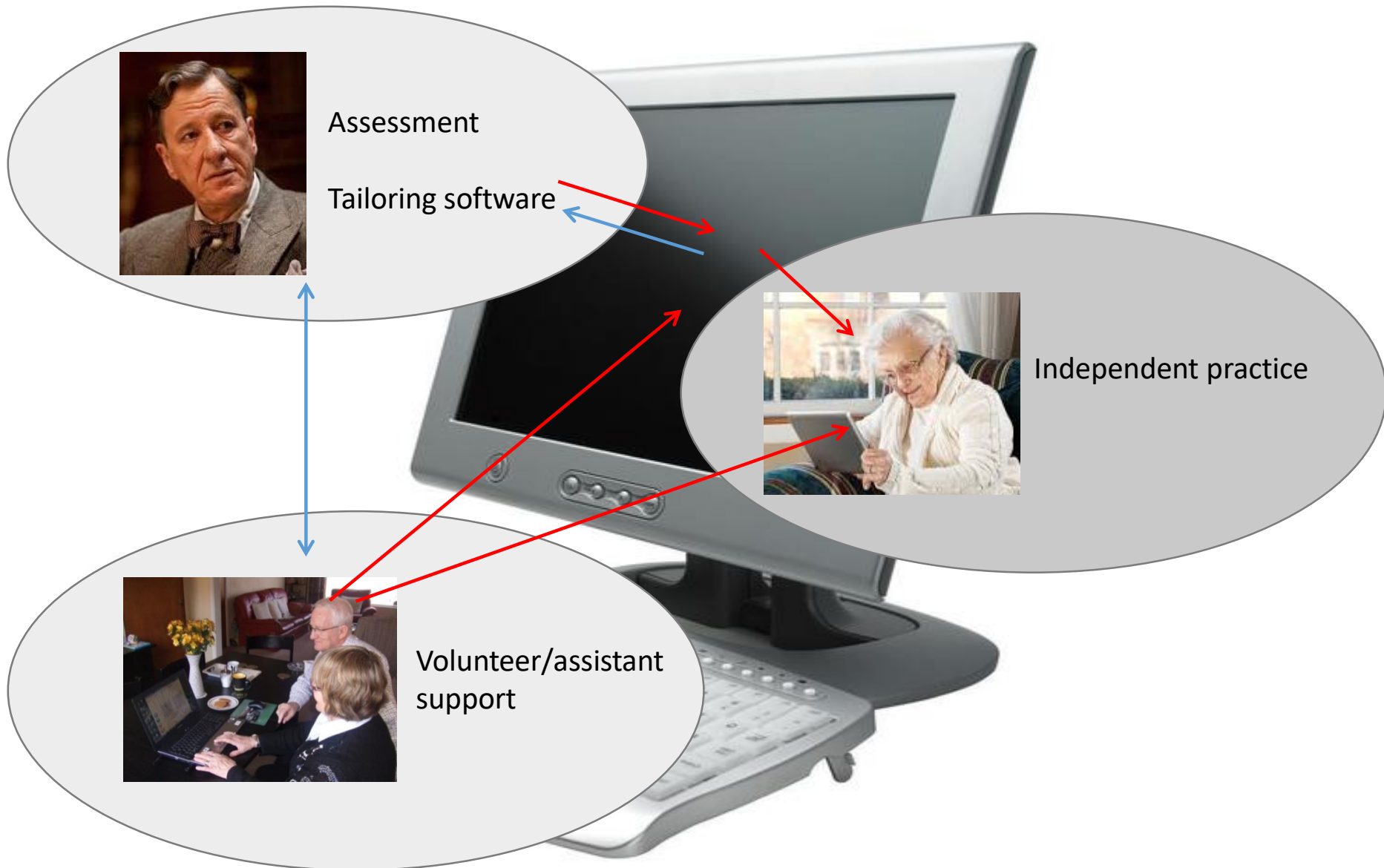
Dose

Intensity

Limited availability long term after stroke

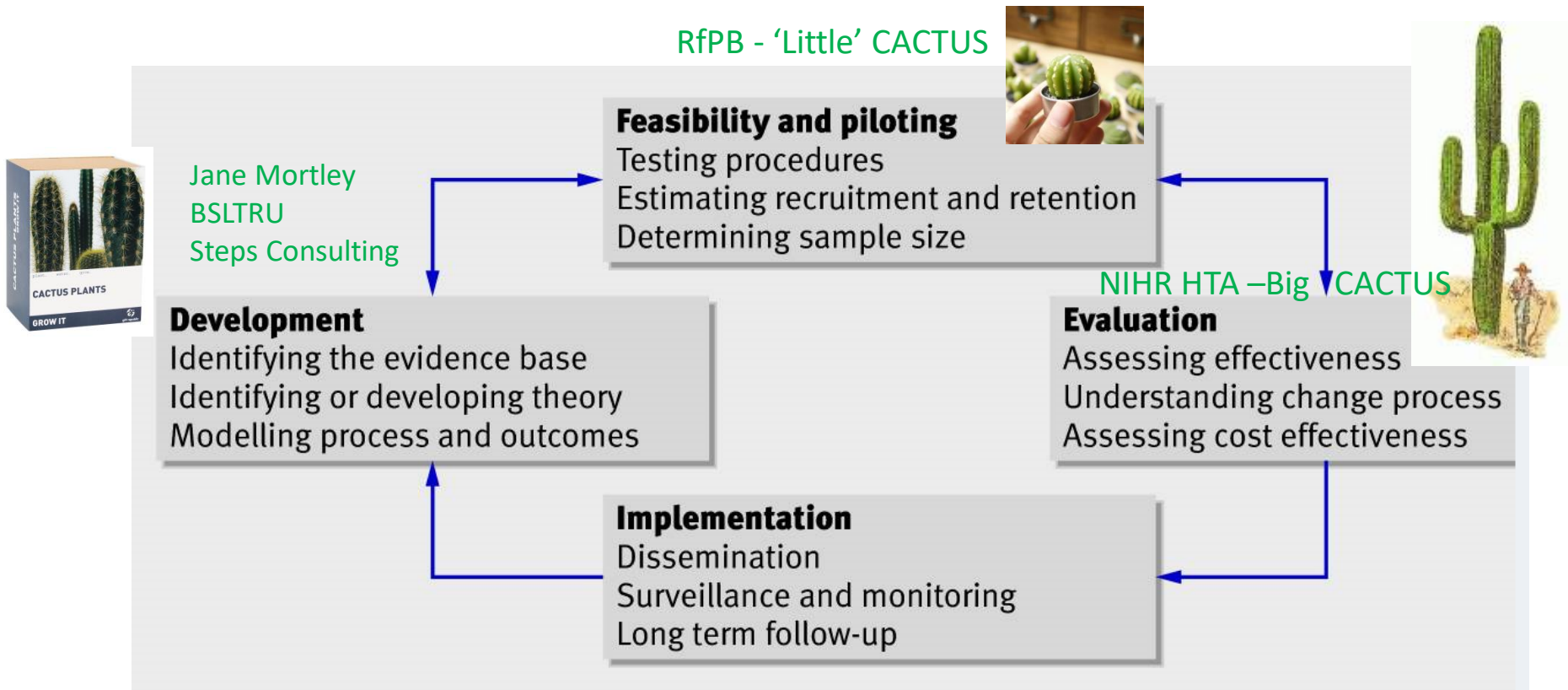
People with aphasia want more therapy

Computer therapy approach using StepByStep



Clinical and Cost Effectiveness of Aphasia Computer Therapy (CACTUS)

How to grow a CACTUS...



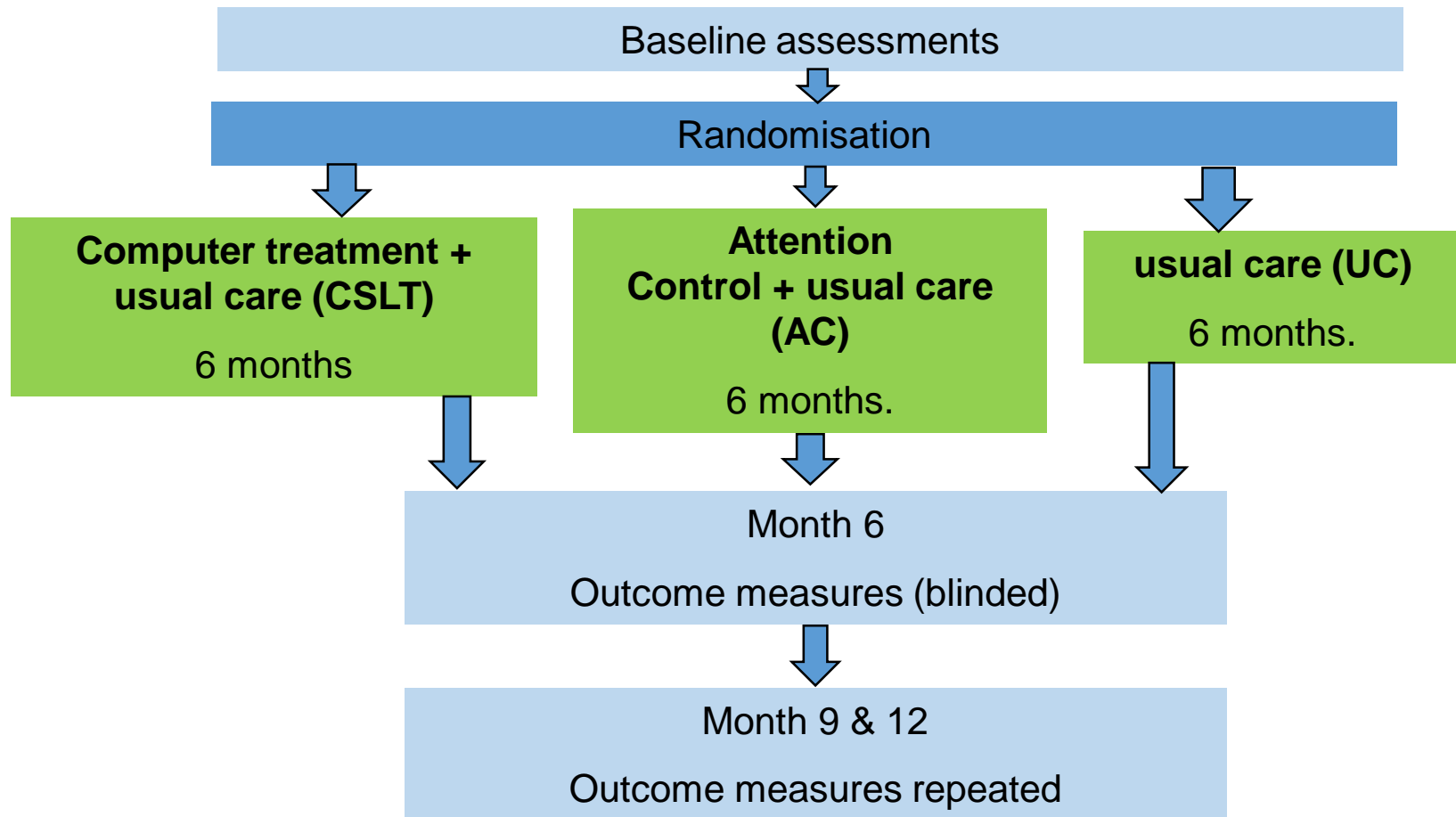
Computer Intervention evaluated (CSLT)

| | |
|--------------------|---|
| Why? | To provide increased amounts of SLT for word finding therapy To adhere to principles of experience dependent neuroplasticity (salience, repetition, intensity, feedback) |
| What? | Word finding exercises on a computer (StepbyStep software) |
| Who provided? | Speech and language therapists provided the tailored software; assistants or volunteers supported practice (1 hour a month) |
| How? | Self managed/independent practice on a computer |
| Where? | Own home |
| When and how much? | Recommended practice 20-30 minutes per day for 6 months |
| Tailoring | Prescribed exercises tailored to individual need by SLT based on language assessment results 100 personally relevant words chosen for practice |
| How well? | SLTs received 1 day training, manual of intervention provided Fidelity to intervention manual measured. |

Big CACTUS study design

- Randomised controlled trial
 - ‘Pragmatic’ evaluating how well it works in usual care conditions
 - Provided CSLT in addition to usual speech & language therapy available

Big CACTUS study design



285 participants needed

21 SLT departments

(21 NHS IT systems!)



People in the study

- Aged 18 or over
- Diagnosis of stroke(s) at least 4 months before randomised
- Diagnosis of aphasia
- Word finding difficulties
- Ability to perform a simple matching task with the StepByStep© programme

Two primary objectives

| Objective: to establish whether CSLT... | Outcome measure |
|---|---|
| Increases ability to find words of personal importance (impairment) | Naming test using set of 100 words chosen for practice |
| Increases functional communication ability in conversation (activity) | <ul style="list-style-type: none">• Video's of conversations structured around topics of interest• rated blind to group and assessment time point• Therapy Outcome Measures (TOMS) Activity scale |

Secondary objectives

| Objective: to establish whether CSLT... | Outcome measures |
|--|---|
| Increases participant perception of communication, participation and quality of life | COAST (Communication Outcomes After Stroke) |
| Leads to the ability to use words practised in conversation | Counts of treated words spoken in videoed conversations |
| Leads to improvement in untreated words | Comprehensive Aphasia Test – naming objects |
| Is cost effective | EQ5D-5L (aphasia friendly adapted version) Costs of intervention |

Participants

- Recruited 275 participants
- 61% male
- Average age 65.4 years (range = 23 to 92 years)
- Severity: 44% mild word finding difficulties, 30% moderate, 26% severe
- Length of time post stroke: range 4 months-36 years (50% were 1-4 years),

Self-managed use of computer exercises

Average computer use in 6 months = 28 hours

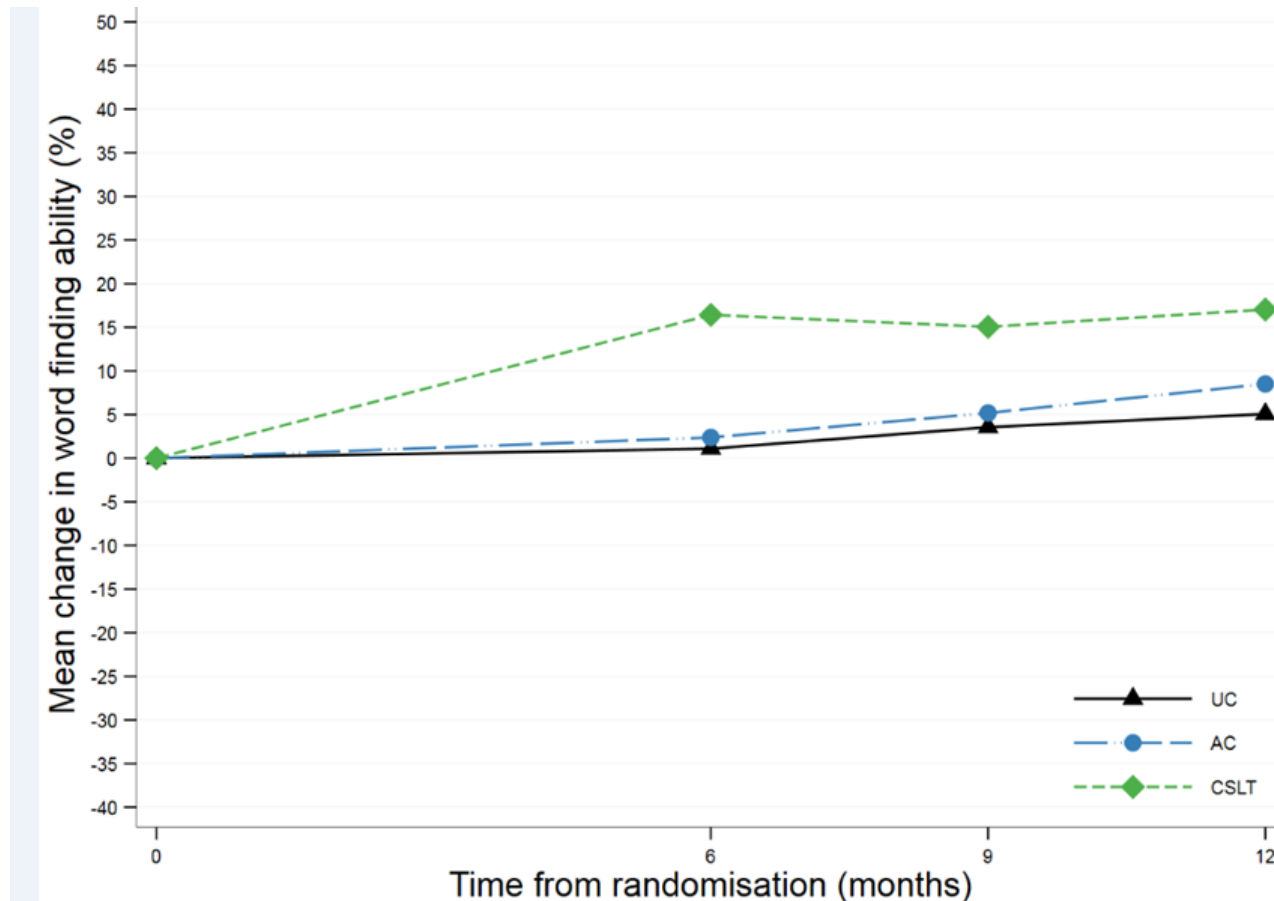
50% of people did 15-50 hours

Range 0-105 hours

More therapy than provided through usual care in 6 months -
Average 3.8 hours

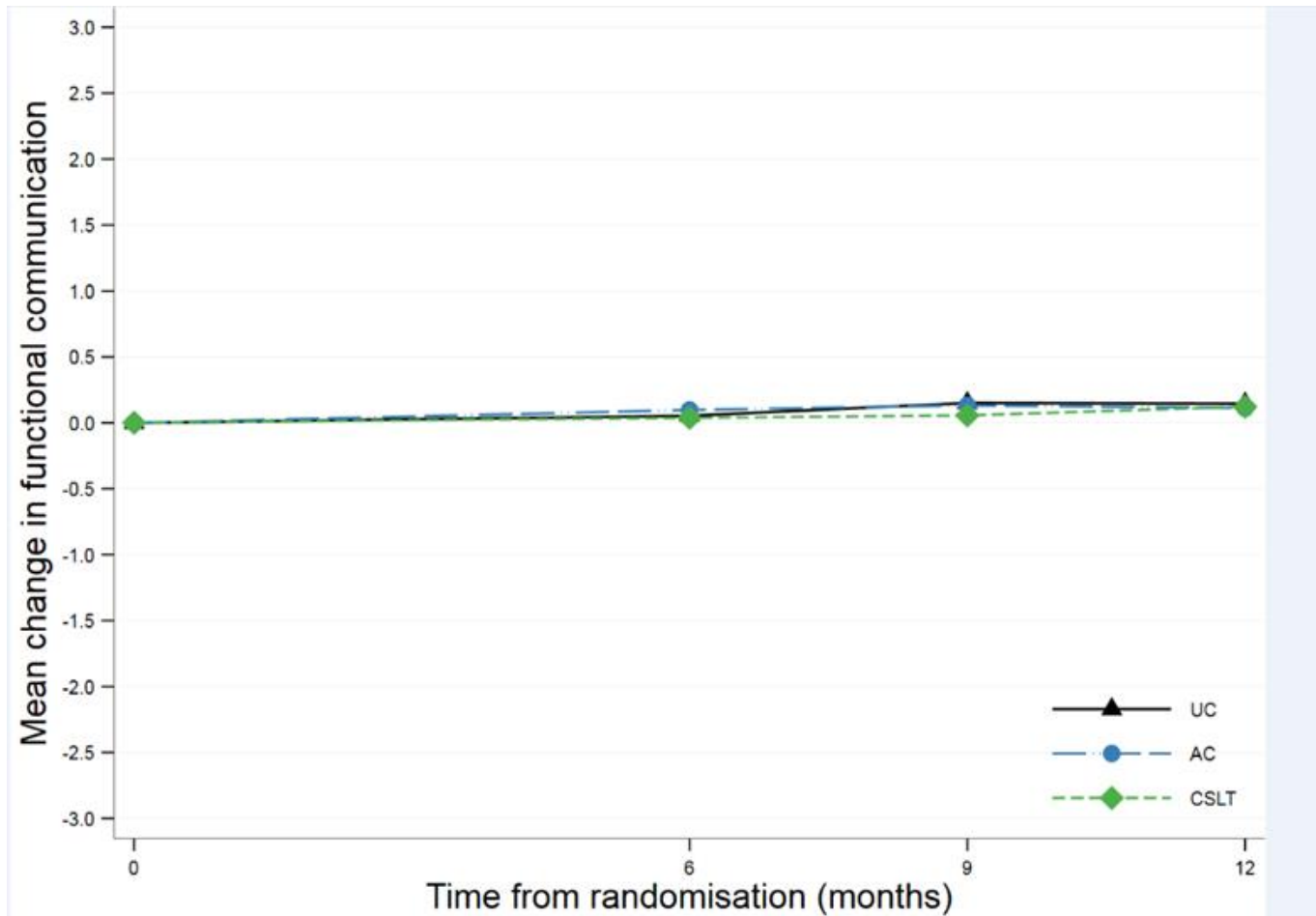
61% people chose to continue with computer practice after 6 months

Did CSLT improve word finding?



- Improvement maintained at 9 and 12 months
- Length of time post stroke didn't make difference

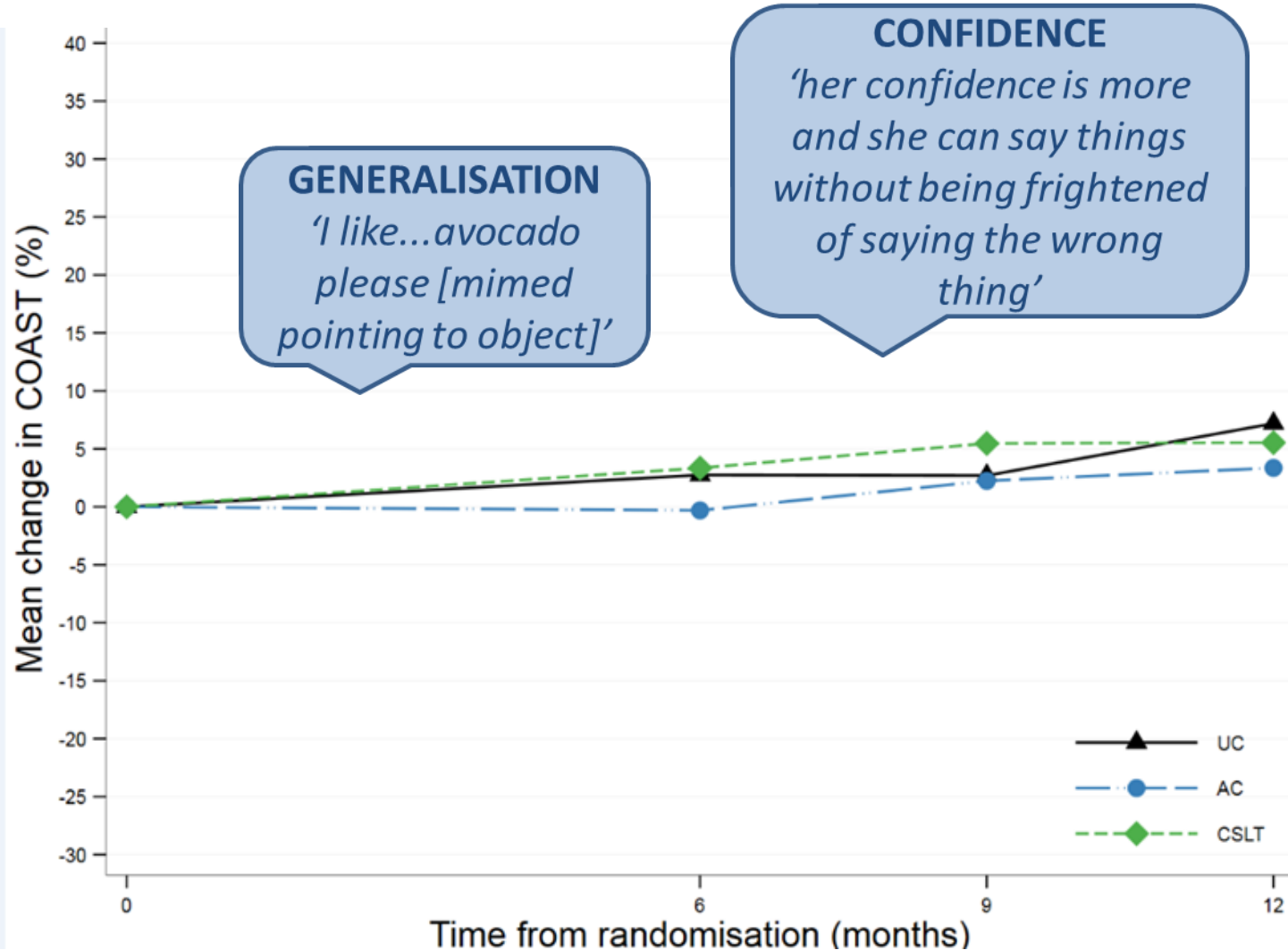
Did CSLT improve general conversation ability?



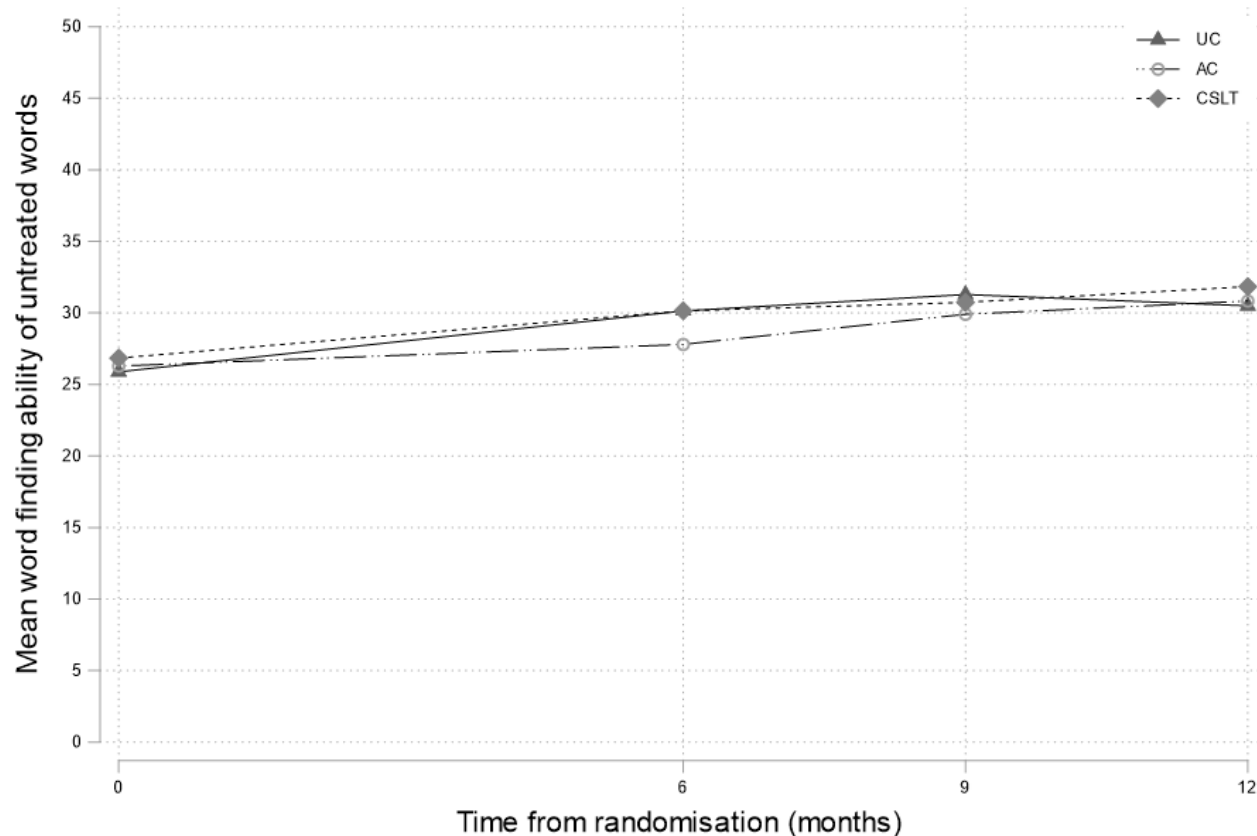
Were treated words used in conversation?

- No evidence to suggest that treated words generalise to conversation with CSLT
- 3 in 10 CSLT participants improved use of treated words in conversation by at least 5% from baseline (compared with 1 in 10 in UC and AC)

Did CSLT improve perception of communication participation and quality of life?



Did CSLT improve retrieval of untreated words?



- **Word finding practice helps you to get better at saying what you practise saying**
- Importance of using personally relevant words for word finding practice

Cost effectiveness

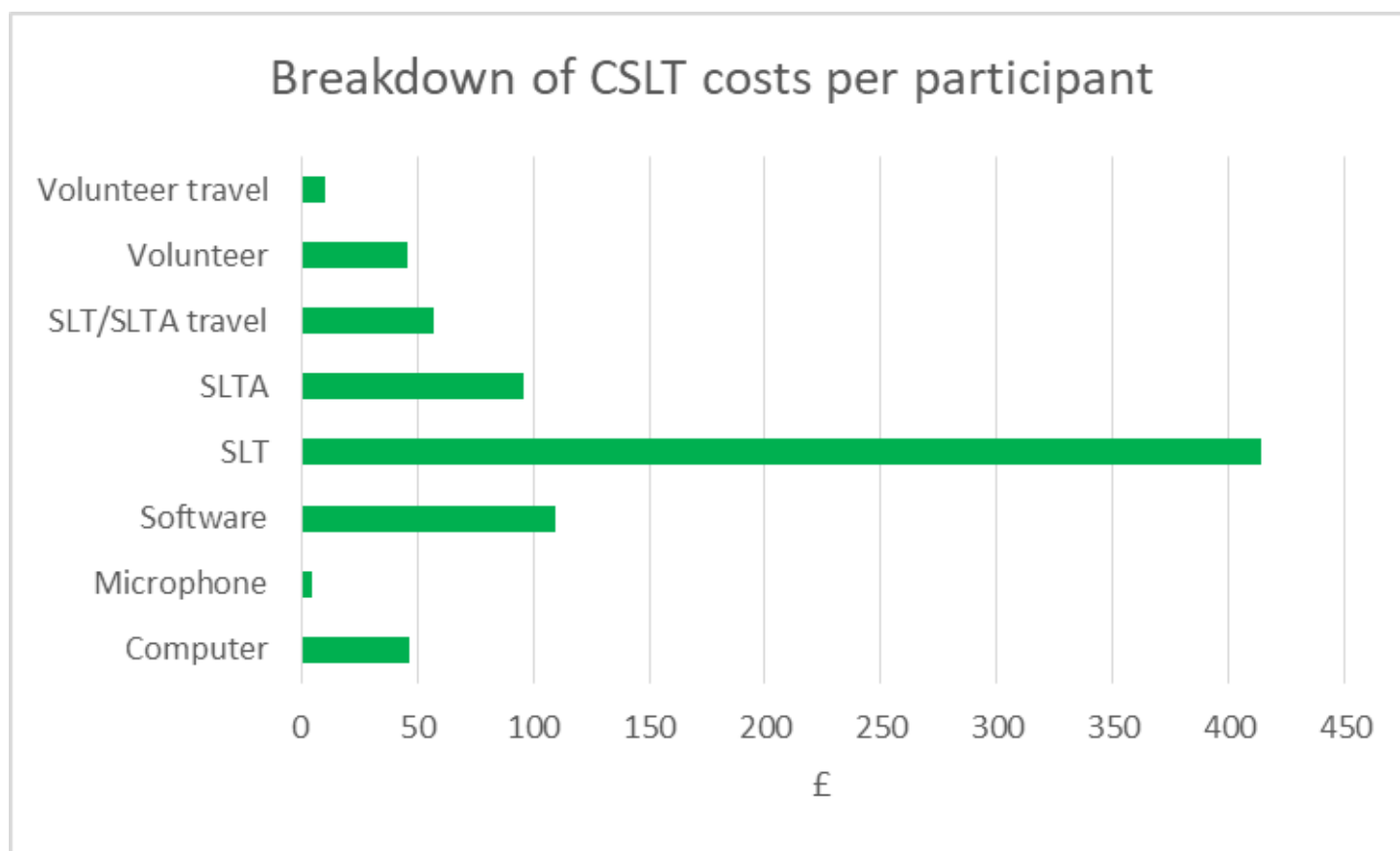


- Unlikely to be cost effective for everyone with aphasia
- More likely to be cost effective for people with mild or moderate aphasia

Costs

Average cost of CSLT intervention = **£733** per participant

Half cost of delivering same amount therapy (28 hours) face to face= £1400



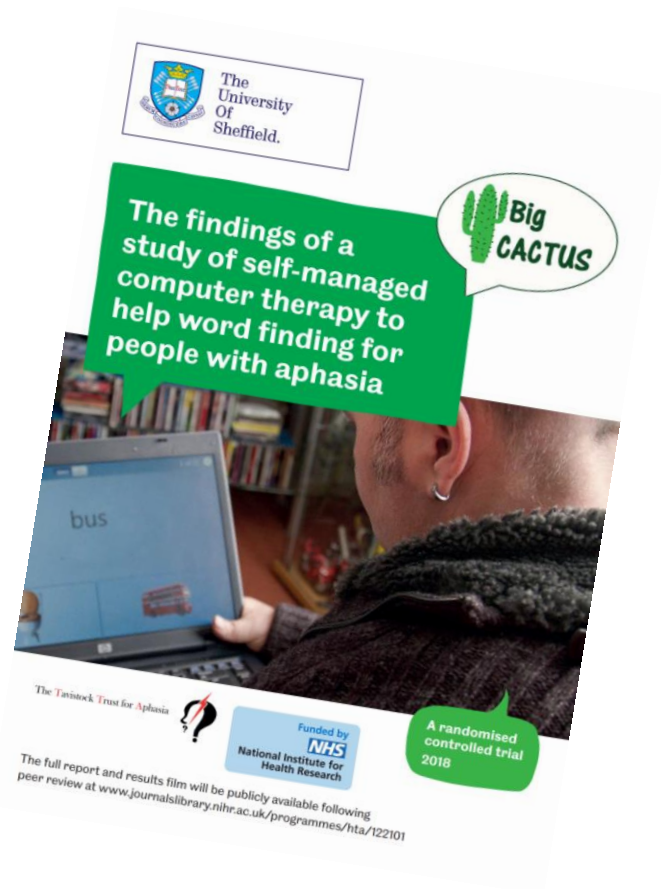
Clinical implications of Big CACTUS

- Self managed computer therapy can help people with aphasia learn new personally relevant words many months and years after their stroke
- Many patients able and willing to practise independently with computer therapy
- Important to use personally relevant words in therapy
- Computer approach useful as part of SLT provision for people with aphasia:
 - Increase in hours of repetitive practice → improving word finding
- Cannot assume people with aphasia will use their new words
- Need to think about ways of supporting patients to use the words they learn to make a difference to their everyday lives

- Film

www.sheffield.ac.uk/scharr/sections/dts/ctrn/bigcactus

- Results booklet



Collaboration

SLT research is everybody's business!

Funders: National Institute for Health Research
& Tavistock Trust for Aphasia



Software developers

Patients & public

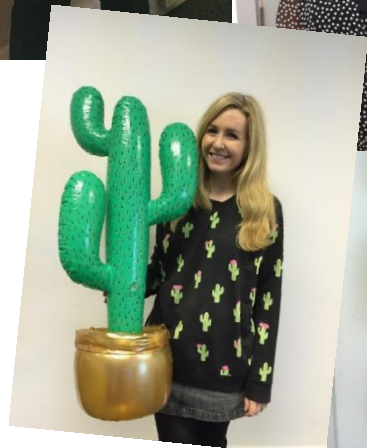
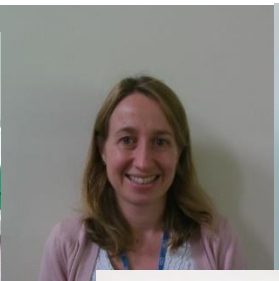
Academics

Research facilitators

Local NHS IT departments

**Speech & Language
Therapists**







Amit Kulkarni

@AmitSaLT

Follow



Great to meet SLTs Kay and @lindseymhowat who have developed skills, confidence and fallen in love with SLT all over again through their involvement in @BigCACTUS_study @RCSLTResearch @RPalmerSLT



5:04 AM - 14 Jun 2018

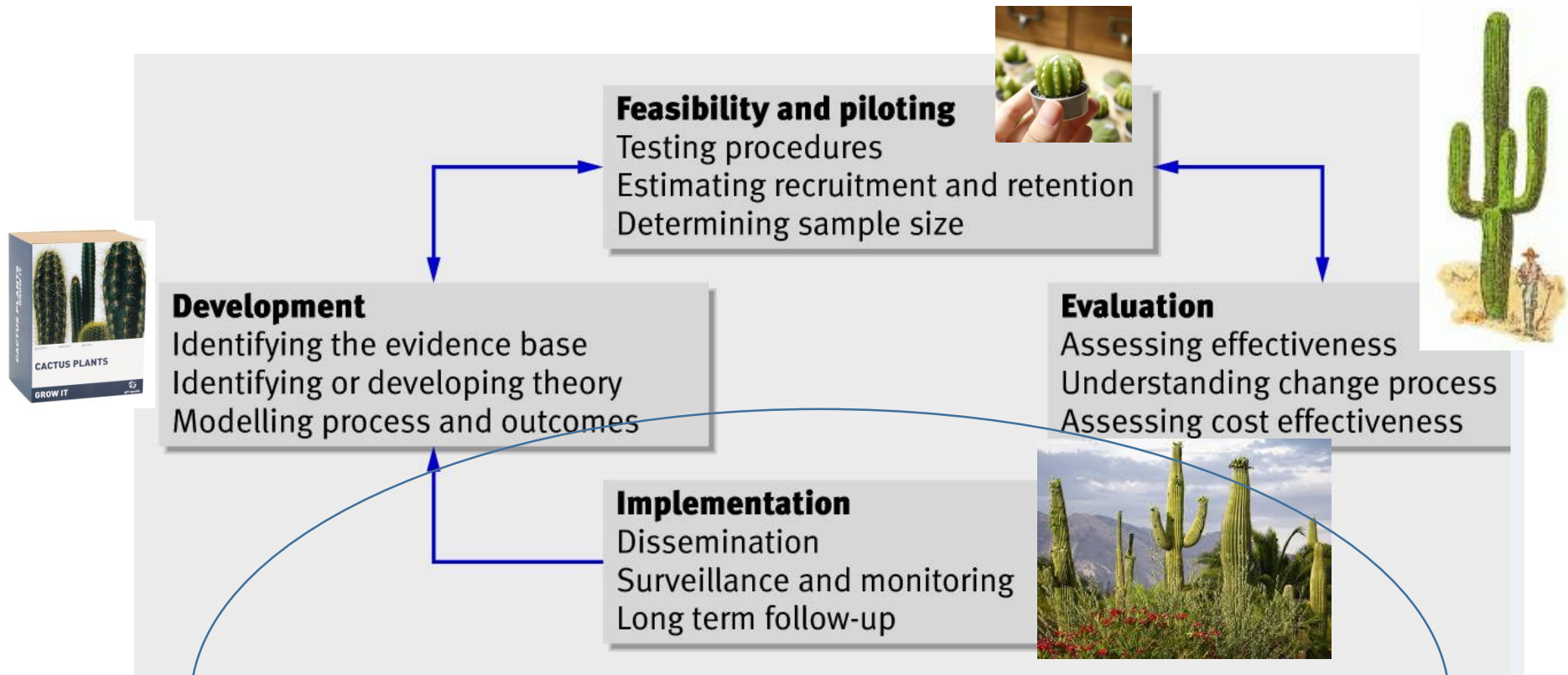
4 Retweets 15 Likes



Where next?

- Academic papers ?
- Clinical guidelines?
- Software development
- More research:
 - Who does this work best for?
 - How can we help more people use new words in their daily lives?

Implementation



Implementation science – factors that affect uptake

CHAT – optimising SLT services using technology

BSLTRU – working together?

Thank you BSLTRU



Big CACTUS Acknowledgements

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Department of Health and Social Care disclaimer

The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health and Social Care.

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Big CACTUS collaborators: Cindy Cooper, Pam Enderby, Marian Brady, Audrey Bowen, Steven Julious, Nick Latimer

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- The Comprehensive Research Network
- Steps Consulting Ltd – Jane and Peter Mortley
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