

# An Introduction to the Person-Based Approach to Intervention Development

Planning and optimising digital health and behaviour change interventions

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# Introduction to the Person-Based Approach to intervention development

# Overview of the person-based approach

**Aim:** to focus on understanding and accommodating the perspectives of the people who will use the intervention, in order to improve uptake, adherence and outcomes

## How?

- Person-based approach (PBA) combines user-centred design methods with evidence-based behaviour change methods
- PPI and stakeholder co-production and in-depth qualitative and mixed method research with a wide range of people from the target population
- This helps ensure that better uptake and engagement with intervention leads to behaviour change and better healthcare outcomes

# Application of the PBA

Cost-effective digital interventions have been developed for:

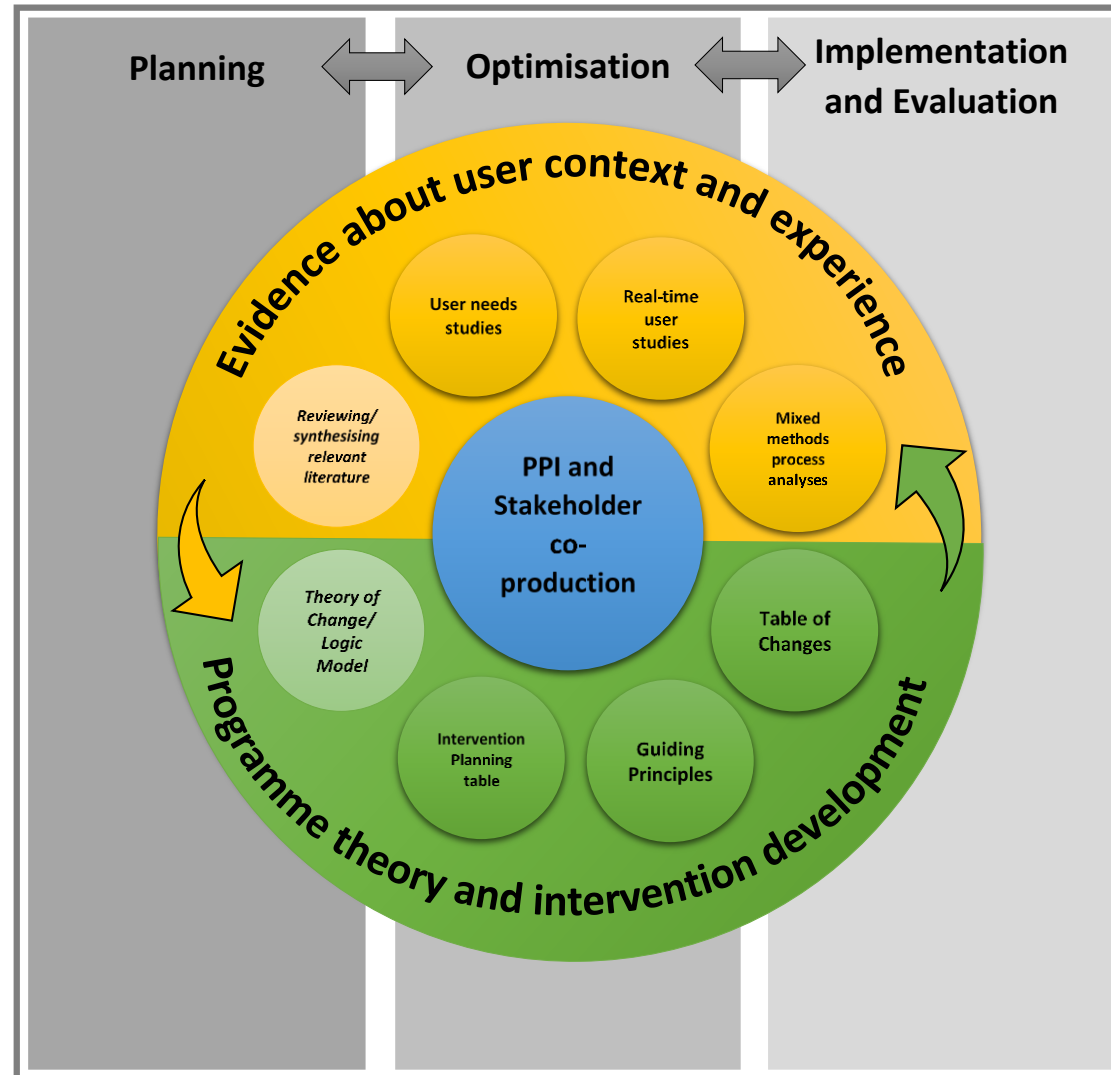
- **Promoting healthy behaviour** (e.g. physical activity, weight management, smoking cessation, alcohol reduction)
- **Managing long-term conditions for patients and healthcare professionals** (e.g. hypertension, diabetes, cancer, cognitive impairment pre-dementia, stroke, asthma, eczema, IBS) **and symptoms** (e.g. back pain, emotional distress, flu, fatigue, dizziness)



**Healthy living with diabetes**



# Combining the PBA with theory, evidence and PPI



# Applying the Person-Based Approach to intervention planning

# Person-based intervention planning

**Inductive primary qualitative research AND/OR qualitative synthesis of existing studies** can provide **understanding of user perspective** and ***key context-specific behavioural issues*** - will help developer to:

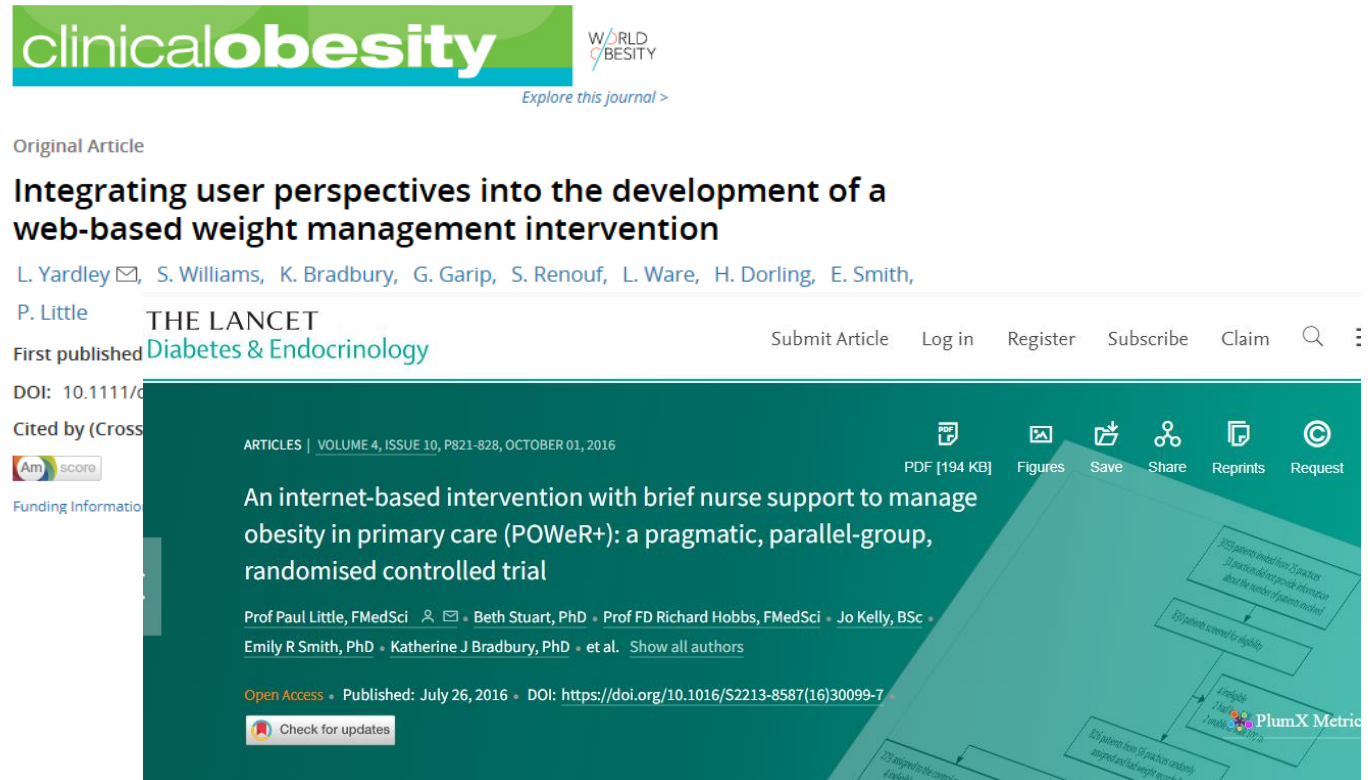
- **Select theory- and evidence-based techniques** that are most acceptable, salient, feasible for target population
- **Avoid or modify intervention characteristics** that are disliked, impractical, intrusive
- **Suggest the need for new intervention characteristics**, hence not yet evidence-based

# Person-based intervention planning: the example of POWeR

Need for cost-effective weight management support.

**Aim:** to support people to adopt a **sustainable and positive approach** to weight management

- Build habits; become own personal health trainer.



The screenshot shows the 'clinicalobesity' journal page for an article titled 'Integrating user perspectives into the development of a web-based weight management intervention'. The article is by L. Yardley et al. and is published in 'THE LANCET Diabetes & Endocrinology'. The article title is 'An internet-based intervention with brief nurse support to manage obesity in primary care (POWeR+): a pragmatic, parallel-group, randomised controlled trial'. The authors listed are Prof Paul Little, Beth Stuart, Prof FD Richard Hobbs, Jo Kelly, Emily R Smith, Katherine J Bradbury, et al. The article is published online July 26, 2016. The DOI is https://doi.org/10.1016/S2213-8587(16)30099-7. The article is available as a PDF (194 KB) and includes figures, save, share, reprints, and request options. A flowchart is visible in the background, showing the study design and patient flow.

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Original Article

**Integrating user perspectives into the development of a web-based weight management intervention**

L. Yardley, S. Williams, K. Bradbury, G. Garip, S. Renouf, L. Ware, H. Dorling, E. Smith, P. Little

First published THE LANCET Diabetes & Endocrinology

DOI: 10.1111/...

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PDF [194 KB] Figures Save Share Reprints Request

**An internet-based intervention with brief nurse support to manage obesity in primary care (POWeR+): a pragmatic, parallel-group, randomised controlled trial**

Prof Paul Little, FMedSci, Beth Stuart, PhD, Prof FD Richard Hobbs, FMedSci, Jo Kelly, BSc, Emily R Smith, PhD, Katherine J Bradbury, PhD, et al. Show all authors

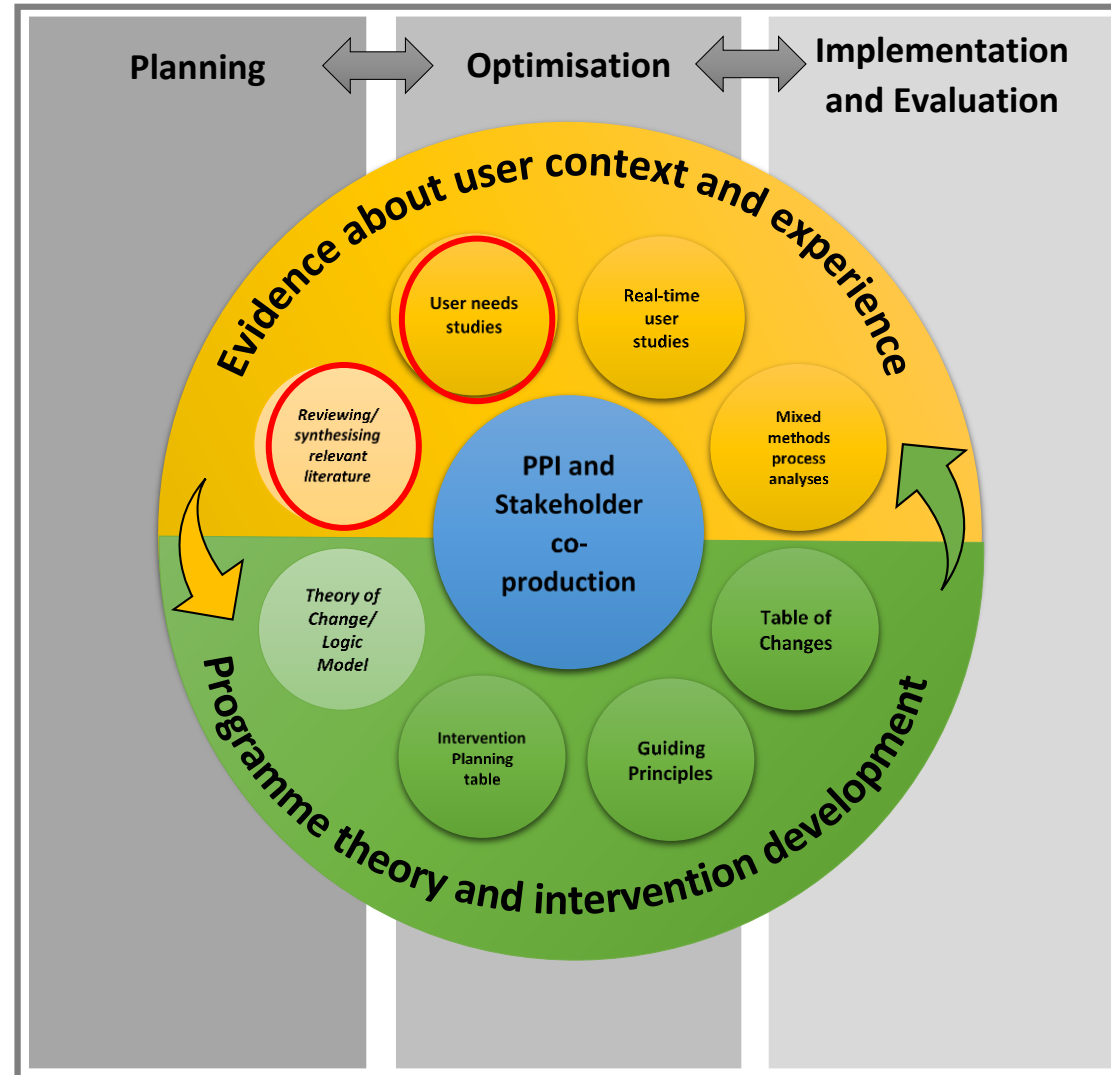
Open Access • Published: July 26, 2016 • DOI: https://doi.org/10.1016/S2213-8587(16)30099-7

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PlumX Metrics



# Using the PBA during intervention planning



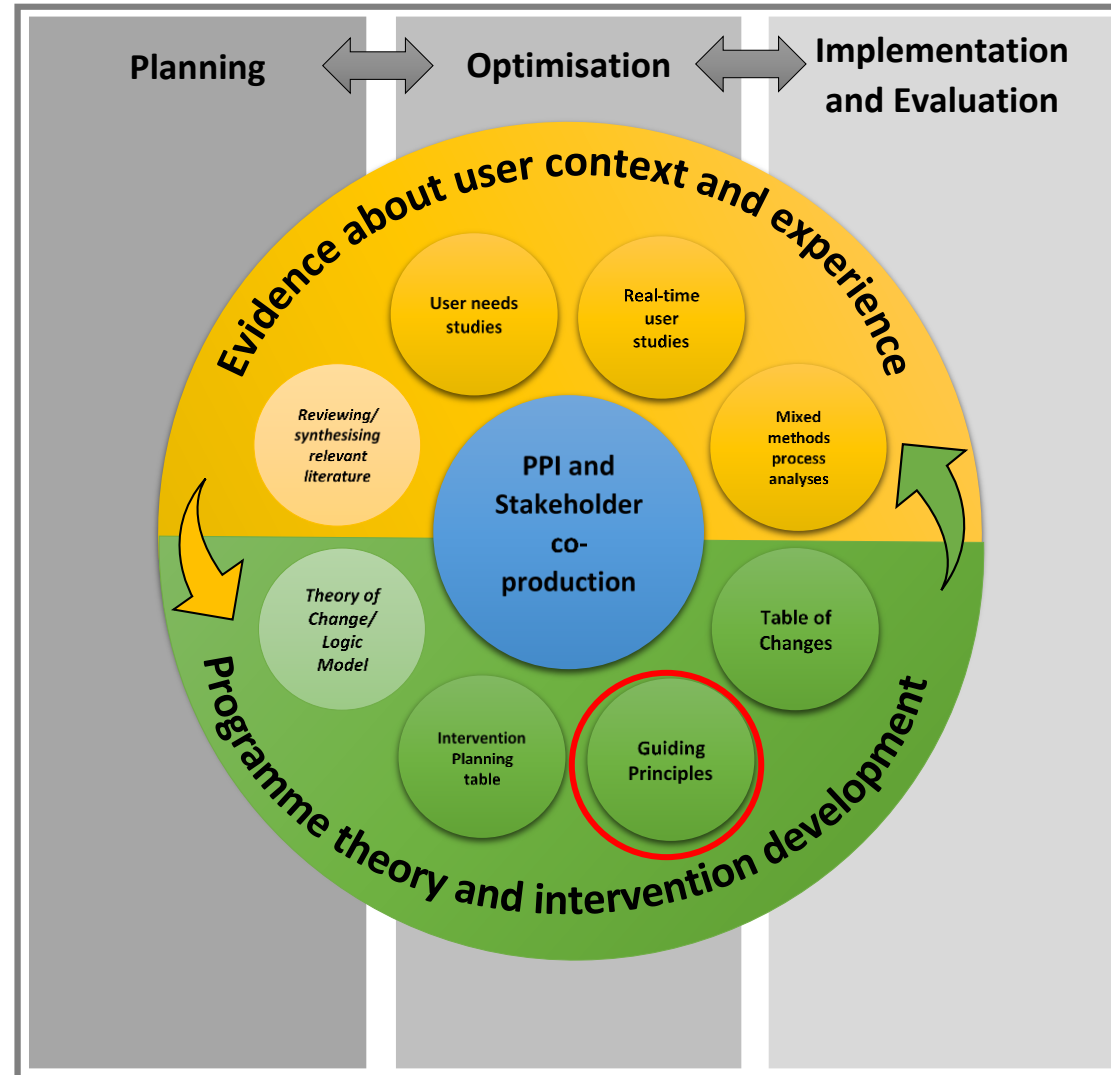
# Qualitative study: experiences of weight management

-Interviewed 25 people (18 women, 7 men) aged 18-57

Reported numerous experiences of **previous unsuccessful weight management attempts**:

*“Every day is a diet for me ... I’ve tried everything.”*

# Using the PBA during intervention planning



# Guiding Principles

**Formulate guiding principles** to inform intervention development by highlighting how intervention will address key context-specific behavioural issues:

- a) **Identify key intervention design objectives** (based on issues, needs identified as crucial to intervention success)
- b) **Identify key features of the intervention** that can achieve those objectives

Key features could include ***behaviour change techniques*** (from intervention planning - e.g. goal setting), ***technology characteristics*** (e.g. brief modules for mobile phone), ***implementation setting*** (e.g. primary care), etc.

# POWeR design objective 1: to persuade users that this approach to weight management **will be effective**

## Key features that can achieve this aim

- **Distinctive** – containing new, surprising and interesting content, e.g. ‘POWeR tools’ (self-regulation techniques)
- **Explicitly evidence based**, presenting scientific rationale for recommendations and proof of their effectiveness
- **Non-commercial**, developed by named team of medical and behaviour change experts, linked to NHS



### Does goal setting really work?

A scientific study over 4 weeks compared people who set different levels of goals to people who were just given nutrition facts and set no goals.

The results showed that **people who set goals were more likely to lose weight on their eating plan.**

# Golden Rules of Guiding Principles

- ✓ They draw on an **in-depth understanding** of your target user group
- ✓ They focus on making the intervention **engaging** – persuasive, meaningful, enjoyable
- ✓ They are revisited and **iteratively refined** throughout development



# What do you think?

<b>Intervention Design Objective</b>	<b>Key Feature(s)</b>
To support young people to wear face masks when in public spaces	Provide information on wearing face masks

# Improvement?

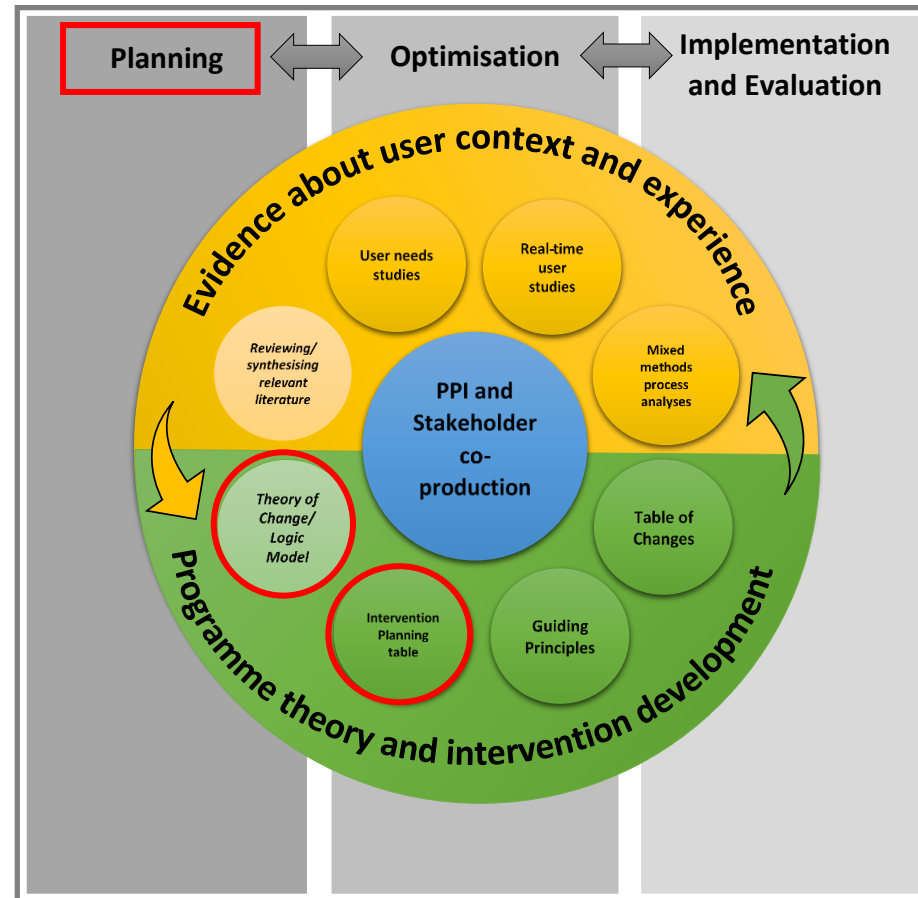
Intervention Design Objective	Key Feature(s)
To <b>motivate</b> young people to wear face masks when in public spaces	Provide information <b>on the benefits of</b> wearing face masks



# How about now?

Intervention Design Objective	Key Feature(s)
To motivate young people to wear face masks when in public spaces	<b>Emphasise</b> the benefits of wearing face masks <b>in terms of protecting vulnerable others</b>

# Using the PBA during intervention planning



# Intervention planning table

- **What is it?**

**Systematic record of...**

- Barriers and facilitators to the target behaviour(s)
- Proposed intervention content (functions/features) to address these
- (Optional): how it maps to relevant theory
- Rationale and evidence-base for intervention design

- **How do we use it?**

- Download template from PBA website
- Draws on evidence collated from all sources, e.g. qual interviews, literature review, PPI/stakeholder input
- Optional - add additional behavioural analysis mapping intervention on to relevant theories

# Behavioural analysis – extending the planning table

- **Match intervention content with behaviour change frameworks/taxonomies**
  - E.g. Behaviour Change Wheel (Michie et al., 2014; 2015); Theoretical Domains Framework (Cane et al., 2012); Behaviour Change Techniques Taxonomy (Michie et al., 2013)
- **And/or appropriate psychological theory**
  - E.g. Self-Determination Theory (Deci & Ryan, 2012), Social Cognitive Theory (Bandura, 1998)
- **Map programme theory onto generic theoretical constructs**

# BP:Together planning table



Optional additional  
behavioural analysis

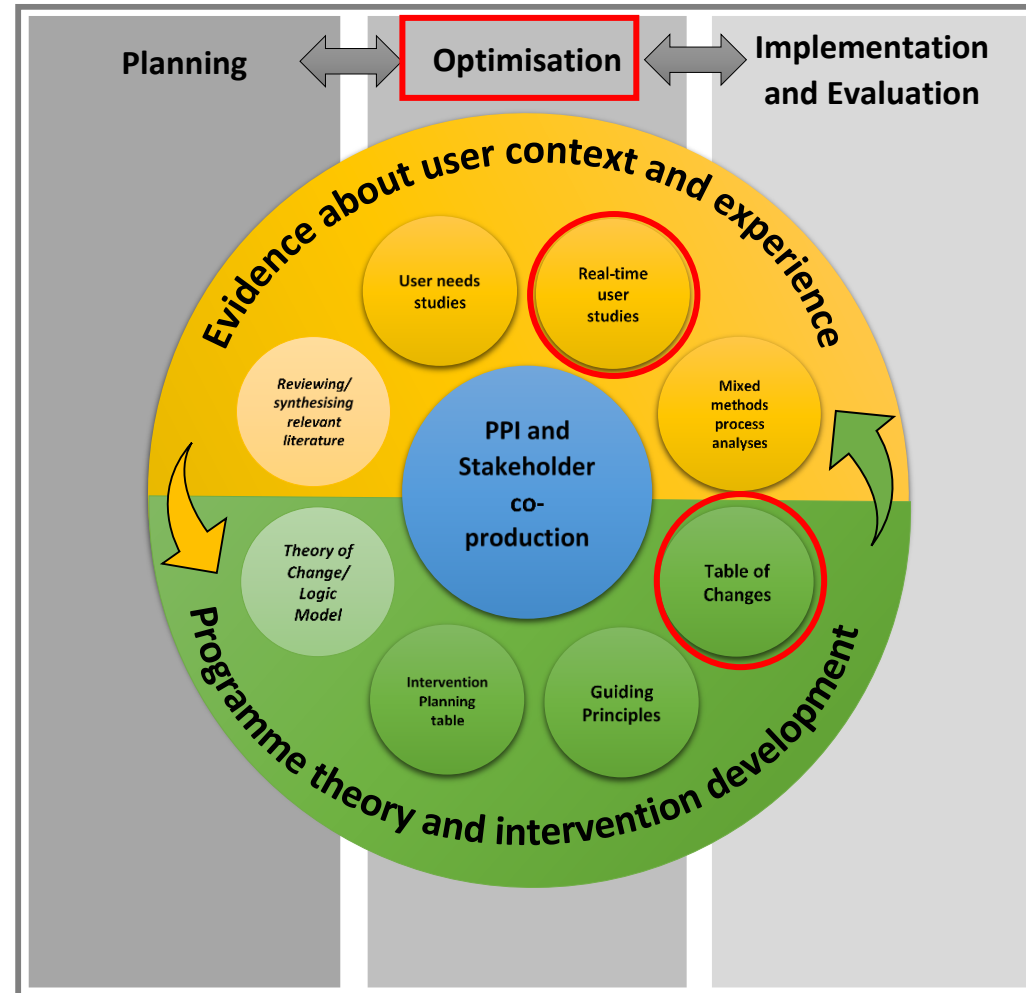
Barrier/ <i>facilitator</i>	Details about evidence	Intervention components to overcome barrier	Behaviour Change Techniques BCT Taxonomy (Michie et al., 2013)
Target behaviour: HCPs to initiate medication change when readings indicate it is appropriate			
HCPs are reluctant to change medication when home BP readings are close to target threshold.	HCPs were less likely to change blood pressure medication when readings were borderline (Barton, 2018).	<p>Improve HCP <b>outcome expectancy</b>:</p> <ul style="list-style-type: none"><li>- Provide evidence for benefits of lowering BP in stroke patients within HCP training module</li></ul> <p>Increase HCP confidence (<b>self-efficacy</b>) to make changes:</p> <ul style="list-style-type: none"><li>- Provide examples of how to plan medication changes in advance</li><li>- Encourage patients to message HCP to let them know they are happy to change medication</li></ul>	<p>5.1 Information about health consequences</p> <p>9.1 Credible source</p> <p>4.1 Instructions on how to perform behaviour</p>

# Logic models

- Purpose:
  - Model the hypothesised mechanisms of action of the intervention (i.e. how it is thought to work)
  - To visualise the processes and relationships in the intervention
  - Provides a check that the intervention design features and components are appropriate
- Method:
  - Draw upon the MRC process evaluation guidance
  - Create a testable model that outlines how the different intervention components are hypothesised to affect outcomes

# Applying the Person-Based Approach to intervention development and optimisation

# Using the PBA during intervention optimisation





# Intervention development and optimisation

- **Inductive qualitative research**

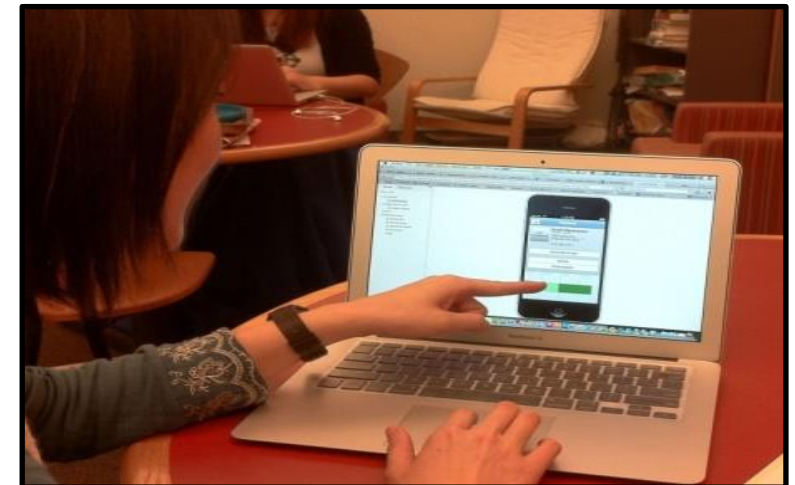
- Essential to gain insight into whether all intervention components
  - comprehensible, acceptable, feasible
  - easy to use, motivating, enjoyable, informative, convincing

- **Methods:**

1. **Think-aloud studies**: elicit range of target users' reactions to every element of the intervention
2. **Retrospective or longitudinal interviews**: experiences of using the intervention in the real world
3. **Triangulation** with quantitative usage data
  - AMUsED Framework on PBA website

# Think aloud interviews

- **AKA:** verbal protocols; cognitive walkthroughs; concurrent think aloud ...
- Ask participants to use the intervention and **say out loud any thoughts that come to mind**
- Good for:
  - Accessing **immediate reactions** to intervention content (particularly adverse reactions!)
  - Observe **how an intervention is used**
  - Identifying **bugs**
  - **Iterative** development



## Discussion: Thinkaloud interviews

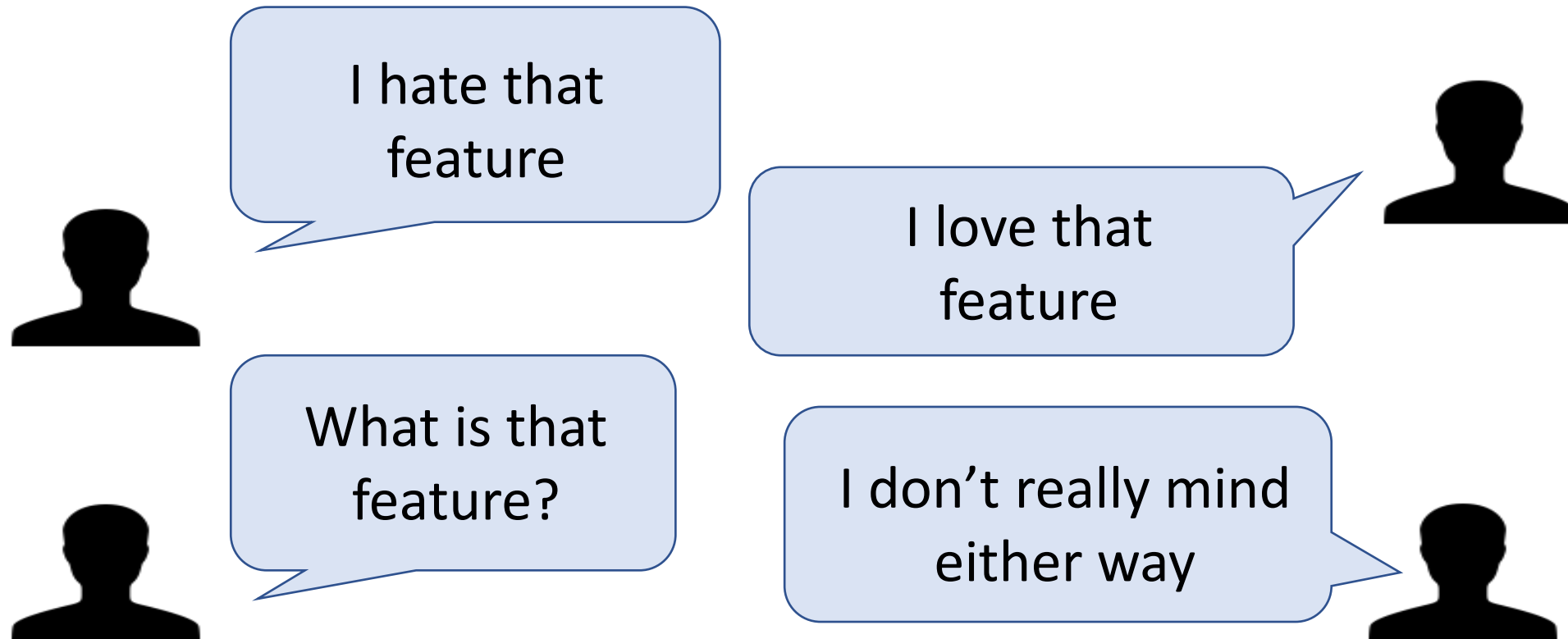
- Benefits and challenges (actual or envisaged)
- Any top tips/advice from those who have conducted this type of interview?
- Any questions about practicalities of conducting?

# Think aloud interviews

- ✓ Practice being a participant
- ✓ Combine with semi-structured interviews and/or longitudinal interviews
- ✓ Neutral prompts: “what are you thinking now?”
- ✓ Ask about content, not the page
- ✓ Ask participants to say out loud what they are looking at
- ✓ Use non-verbal cues to judge when to prompt/interrupt
- ✓ Elicit negative views as well as positive ones
- ✓ Take notes

# Making person-based changes

How do you incorporate conflicting user experiences?



30

Coding framework		
Code	Stands for	Means
<b>IMP</b>	Important for behaviour change	This is an important change that is likely to impact behaviour change or a precursor to behaviour change (e.g. acceptability, feasibility, persuasiveness, motivation, engagement), and/or is in line with the Logic Model, and/or is in line with the Guiding Principles For example, participants appear unconvinced by an aspect of the intervention, so you decide to add motivational examples.
<b>EAS</b>	Easy and uncontroversial	An easy and feasible change that doesn't involve any major design changes. For example, a participant was unsure of a technical term, so you add a definition.
<b>REP</b>	Repeatedly	This was said repeatedly, by more than one participant.
<b>EXP</b>	Experience	This is supported by experience. Please specify what kind of experience, for example: 1. PPIs agree this would be an appropriate change. 2. Experts (e.g. clinicians or PPIs on your development team) agree that this would be an appropriate change. 3. Literature: This is supported by evidence in the literature.
<b>NCON</b>	Does not contradict	This does not contradict existing evidence e.g. from reviews, BA table, Logic Model, or the Guiding Principles
<b>NC</b>	Not changed	It was decided not to make this change. Please explain why (e.g. it would not be feasible; or only one person said this).

# Activity: Table of Changes

**In breakout groups (15 mins):**

- Use the example Active Brains table of changes (**materials shared in chat**) to think about:
  - Whether you think a change is necessary
  - What the possible change could be
  - The reasons for the change being important
  - How highly prioritised this change would be





# Making person-based changes: The decision process

## Staying Safe



The activities that you can try are very safe and are recommended by lots of physiotherapists as part of strength and balance training programmes.

If you still have concerns about being safe whilst doing them, there are a few things you can do to help:

- Practise the movements at home before trying them in a new place
- Always do the activities somewhere you feel safe and comfortable
- Wear comfortable and practical clothes and shoes so you can move easily
- Only make the movements more challenging in SMALL STEPS
- If you are concerned about whether an activity is ok for you to try, check with your doctor before you start.

# Making person-based changes: The decision process

Strength and Balance Concerns pages					
Negative Comments	Positive Comments	Possible Change	Reason for change	Agreed change	MoScoW
<p>“I very seldom make plans to go and visit the doctor. And I certainly wouldn’t regarding this, I think.” (P1)</p> <p>“There’s lots of things I’ve seen recently, that have ‘check with your doctor first.’ On the one hand, the television is showing us a surgery waiting room full of people. And you’ve just popped up and said, ‘Will it be all right if I do some exercise?’” (Laughs.)” (P2)</p> <p>Would be surprised if a patient came to me and asked for this type of advice – would think it better for them to check with those who knew them best first (GP Coinvestigator)</p>		<p>Suggest individuals discuss with family member/ friend first if they are unsure.</p>	<p><b>EAS, REP, EXP</b> – participants mindful of high demand on GP and don’t feel this is necessary/ feel able to make decision themselves.</p> <p>Resonates with views of GP coinvestigator</p>	<p>Suggest individuals discuss with family member/ friend first if unsure. If still concerned after this then ask advice of GP</p>	M

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- If you are concerned about whether an activity is ok for you to try, talk it through with a friend or family member first. If you still have concerns after this, you could check with your doctor.



**ActiveBrains**

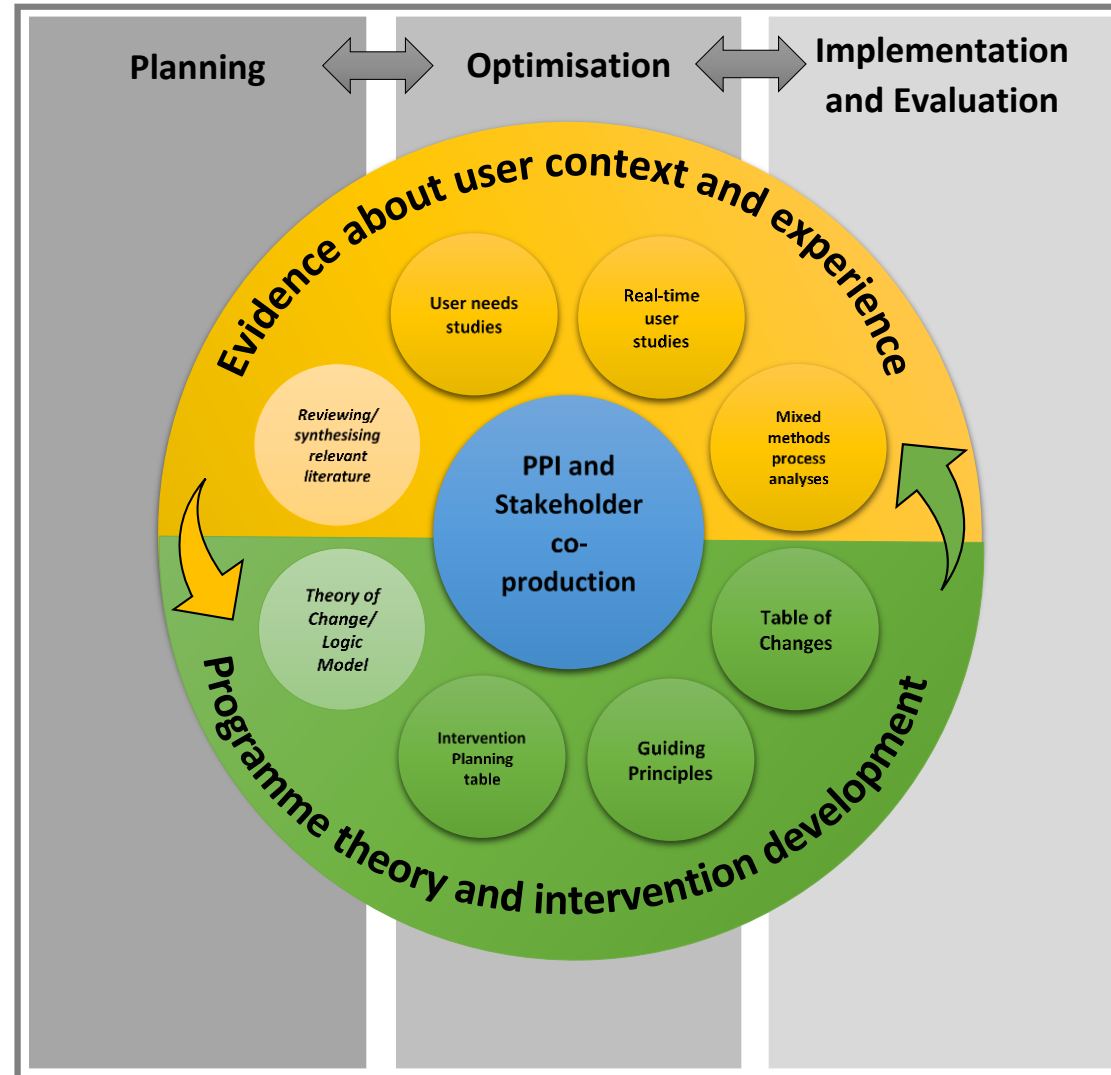
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The '*Table of Changes*' is...

- **Systematic**
  - Record all comments and all changes, increasing transparency
- **Efficient**
  - Rapid turnaround by filtering what needs to be discussed
- **A prompt**
  - to think about why a change should/should not be made

# Combining the PBA with theory, evidence and PPI



# In conclusion: putting the PBA into practice

- It can be flexible - many different combinations of qualitative, mixed methods and PPI/stakeholder input can be used
- Although it is not always possible to fully implement the person-based approach if time/resources constrained – it is vital to devote sufficient resource to development before trialling
- Not the only good way to develop interventions but provides explicit process for identifying:
  - the key behavioural issues from the user perspective
  - distinctive intervention features that will address them

# For more information

You can access all the person-based approach papers and online tutorials here:

<https://personbasedapproach.org/>



# Thank You for Listening!

## Any Questions?