Using qualitative methods in intervention development: An introduction to the Person-Based Approach

Dr Kat Bradbury kjb1e08@soton.ac.uk

On behalf of PBA team

Tweet us at @PersonBased

Overview

- **Introduction to the person-based approach**

- **Intervention planning**

- Drawing on evidence to create guiding principles

- Behavioural analysis and Logic modelling

- **Intervention optimisation**

- Interviews and tabulating changes

- Making decisions about how to change an intervention based on qual feedback.

- **Conclusions and additional resources**

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

- 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 leading to behaviour change and better healthcare outcomes

Application of the PBA

Cost-effective 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)

– **Recommended by INDEX, MRC, PHE**

Related and complementary approaches

- **Usability/acceptability testing** - but PBA is more in-depth, aims to be engaging/persuasive not just acceptable

- **User-centred/human-centred design** – but PBA more focused on behaviour change processes

- **Participatory design/PPI codesign** – totally compatible but PBA involves extensive qualitative research with wide range of users to supplement co-design user input

Combining the PBA with theory, evidence and PPI
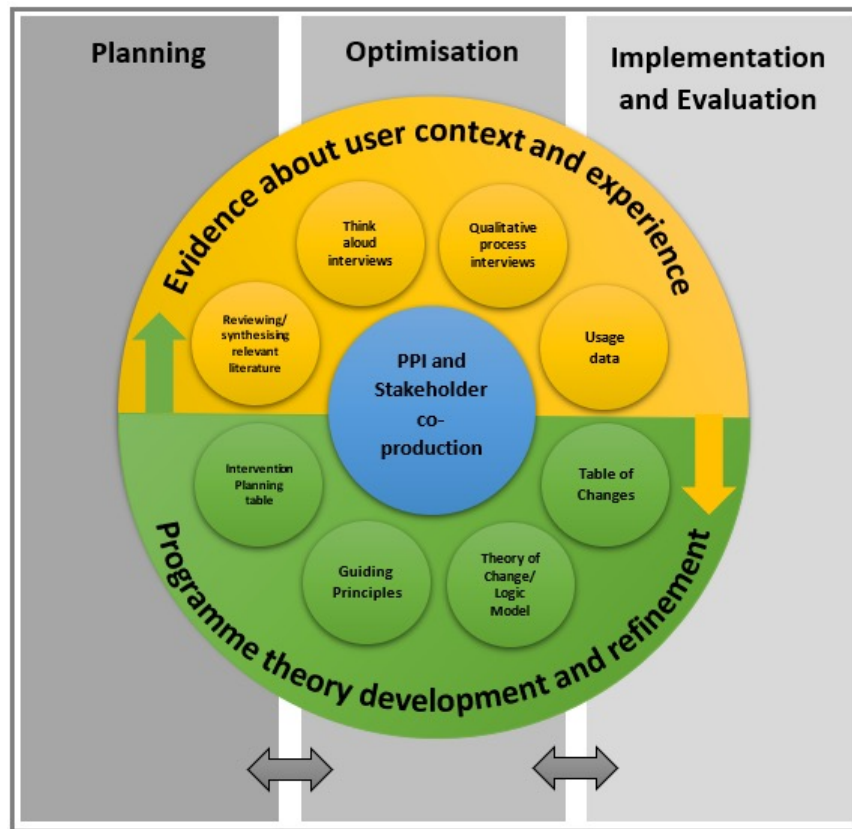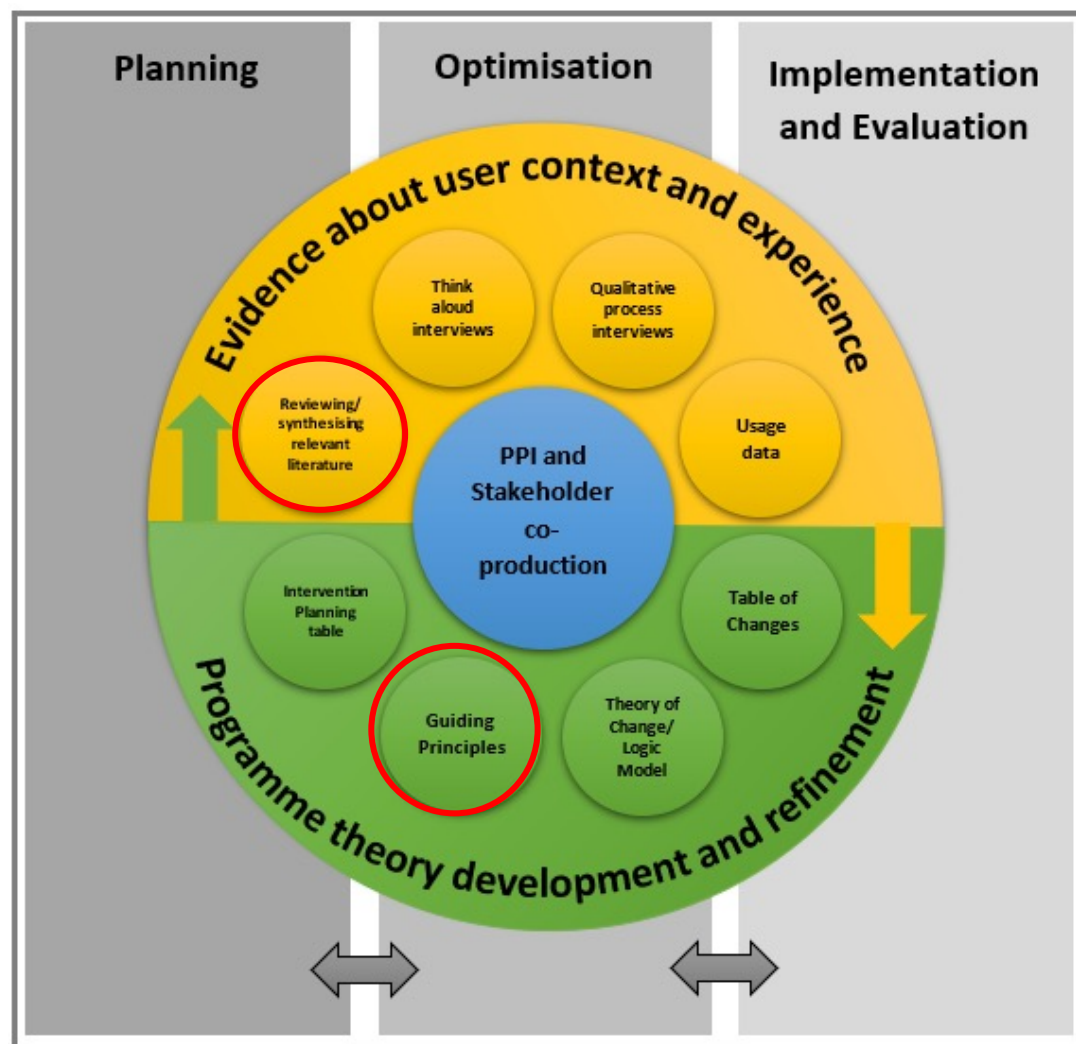
Person-based intervention planning

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

Guiding Principles

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

a) **Identify key intervention <u>design objectives</u>** (based on issues, needs identified as crucial to intervention success) – ***What*** *does the intervention need to do in order to meet target users needs?*

b) **Identify <u>key features</u> of the intervention** that can achieve those objectives – ***How*** *will it do that?*
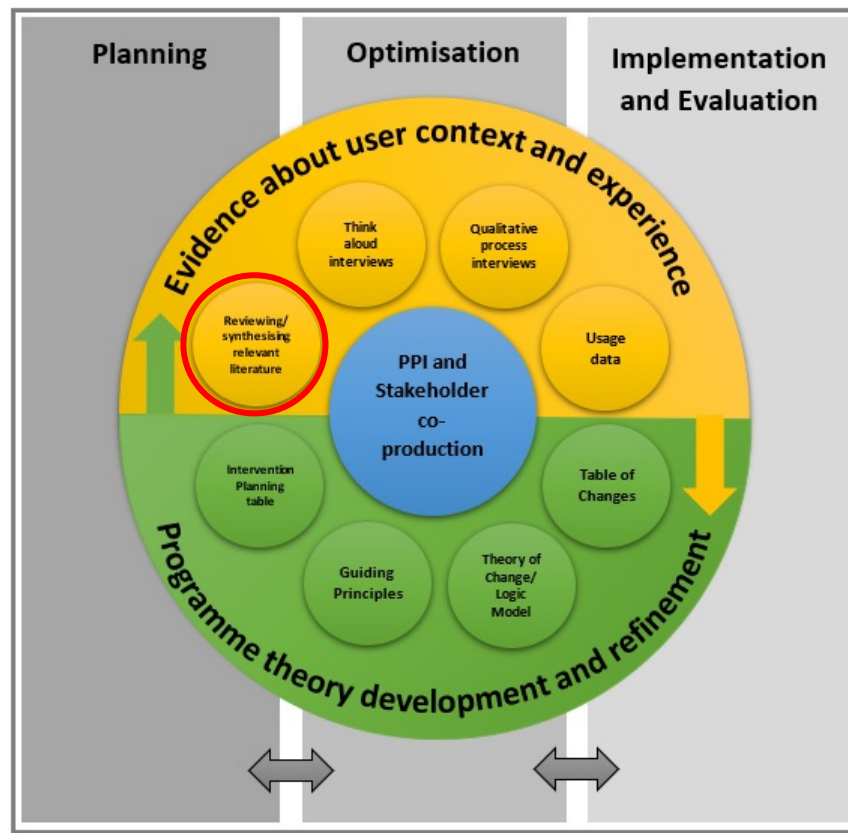
Person-based intervention planning: the example of POWeR

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.

Qualitative study of experiences of weight management

Interviewed 25 people (18 women, 7 men) aged 18-57 about experiences of weight management

-Key context-specific behavioural needs, issues or challenges crucial to intervention success

Overweight participants reported numerous experiences of previous unsuccessful weight management attempts:

"Every day is a diet for me … I've tried everything."

"I had done all sort of things, like these cabbage soup diets. . . I lived on cabbage for a week. And stupid diets … anything that was in the magazines, you tried it."

Reasons for unsuccessful weight management

Feelings of deprivation created by dieting

"I will get to a stage where I will think I have had enough of this, I can't. . . you know I have eaten this for six months now, that's boring. Then I start being naughty and that's when you know I start to fail."

"It makes me feel really awful, if I am telling myself that I can't do, or shouldn't be doing it, the guilt kind of makes me think more about it."

Reasons for unsuccessful weight management

Regime disrupts lifestyle, is effortful, unsustainable

"Whatever I'm going to do needs to be able to fit in with the fact that I like being around with other people and that being weird about your food becomes a conversation piece and can make other people uncomfortable."

"We will have a nice night out, or go out for a drink or anything, always having to think about it, "oh I can't drink this, I can't drink that, I can't eat sweets," ... after a week of work all I want to do, I just want to relax, I don't want to have the stress of being on a diet as well."

17
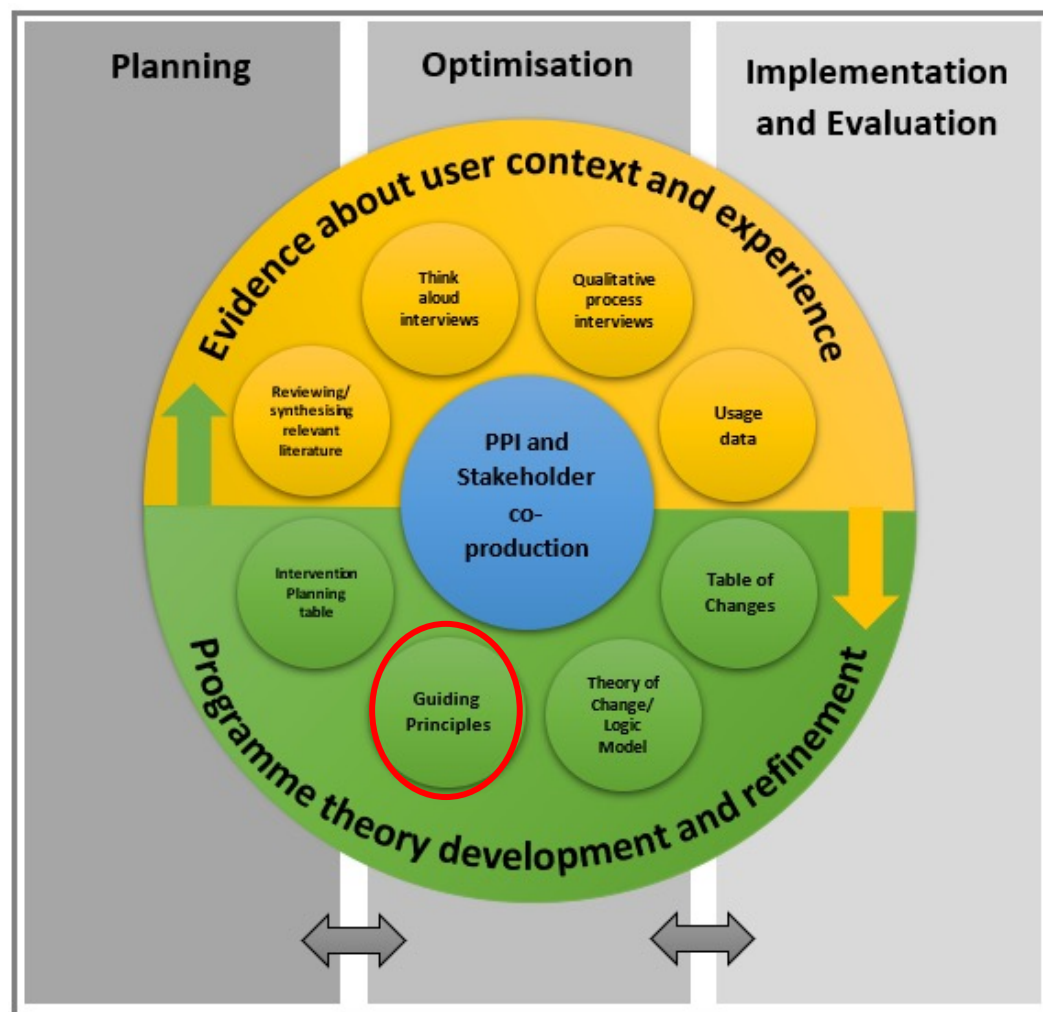
POWeR design objective 1: to persuade users that this approach to weight management will be effective

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**.

POWeR design objective 2: to promote long-term adherence and maintenance of weight loss

Key features that can achieve this aim

- Emphasis on building **autonomous motivation**, e.g. non-prescriptive approach, avoid feelings of 'deprivation' (no forbidden foods, choice of eating plans and goals)

- Focus on creating lifestyle-compatible long-term **habits** (simple eating goals, less reliance on calorie counting, food diary)

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

Guiding principles should not just be 'best practice'

Intervention Design Objective	Key Feature(s)
To provide **safe** exercises for people with heart disease	Provide advice on safe exercise
To make the website **easy to use**	Make navigation clear

Focus on engagement – persuasive, meaningful, enjoyable

Intervention Design Objective	Key Feature(s)
To **reassure** people with heart disease that physical activity is safe **for them**	Provide **reassuring and condition-specific advice** on consequences of physical activity
To make the website easy to use **for those with low computer literacy**	Keep **navigation simple and consistent** (e.g. next and back buttons) and **avoid complex functions**

BEHAVIOURAL ANALYSIS
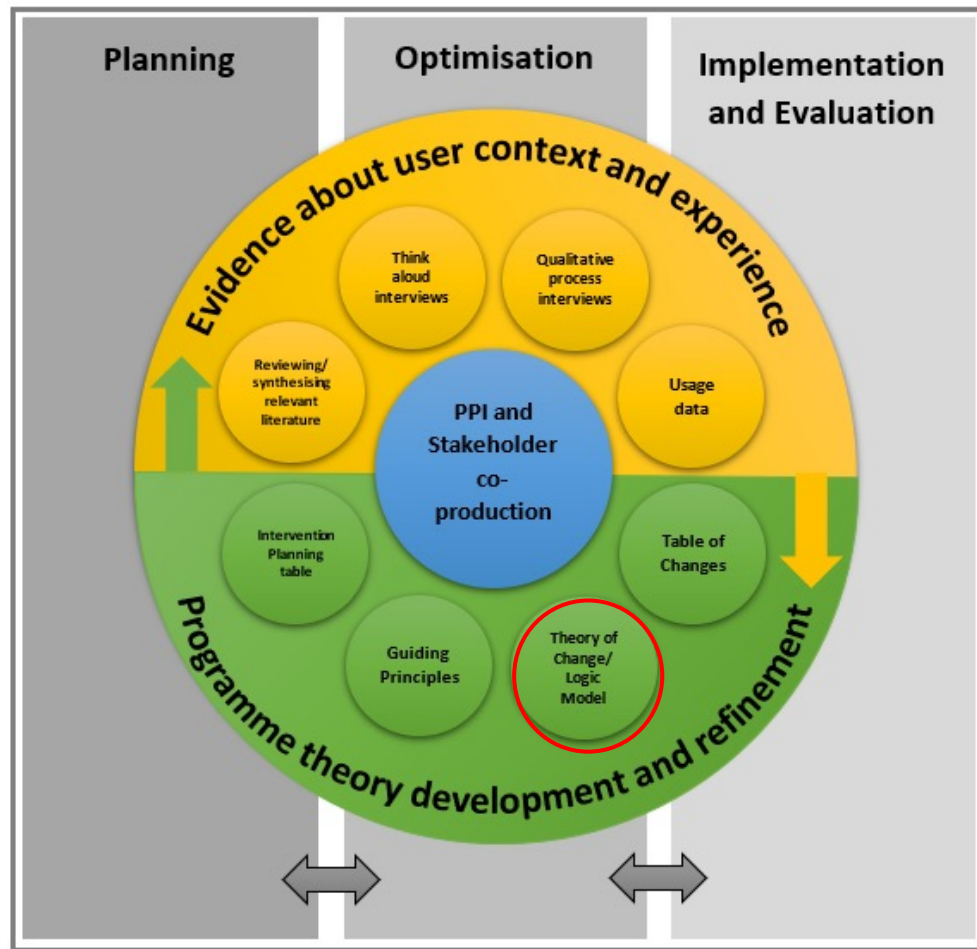
Combining the PBA with theory, evidence and PPI

Behavioural analysis

- **What is it?**
  - Systematic identification and documentation of behaviours, behavioural determinants, and how these can be addressed by the intervention
  - Draws on evidence collated (qual interviews, literature review, PPI/stakeholder input)
  - Mapped on to relevant behaviour change theory
- **Why do we do it?:**
  - Systematically describe the intervention content,
  - Check whether any determinants/content have been overlooked

- **How do we do it?:**
  - Tabulate behaviours, determinants of behaviour and planned intervention features/components
  - Code intervention content using behaviour change theory:
    - Behaviour Change Wheel (Michie et al., 2014; 2015); Theoretical Domains Framework (Cane et al., 2012); other relevant theory
    - Behaviour Change Techniques Taxonomy (Michie et al., 2013).

BP:Together

Online intervention in which:

- Patients who have had a stroke monitor their blood pressure at home for 7 days a month

- Patients enter their blood pressure readings online

- The GP initiates medication changes when average blood pressure is too high over time

Behavioural analysis

UNIVERSITY OF Southampton

CCCAHP
Centre for Clinical and Community Applications of Health Psychology

Identifying missed determinants

**Identifying missed functions/ techniques**

Theoretical mapping

Theoretical mapping

Barriers / *facilitator* to target behaviour from evidence	Intervention components	Target construct (BCW)	Intervention function (BCW)	Behaviour Change Technique (v1)
Target behaviour: GP to initiate medication change when readings indicate it is appropriate				
GPs reluctant to change medication in response to home readings which are perceived as already low enough (Cottrell 2012) or are borderline (Barton 2018)	Demonstrate evidence for benefits of lowering BP in stroke patients Encourage patients to message HCP to let them know they are happy to change medication Plan 3 medication changes in advance Provide examples of how to plan medication changes in advance	Reflective motivation Psychological Capability	Persuasion Education Training	5.1 Information about health consequences 1.4 Action planning 4.1 Instruction on how to perform behaviour

LOGIC MODEL

Combining the PBA with theory, evidence and PPI
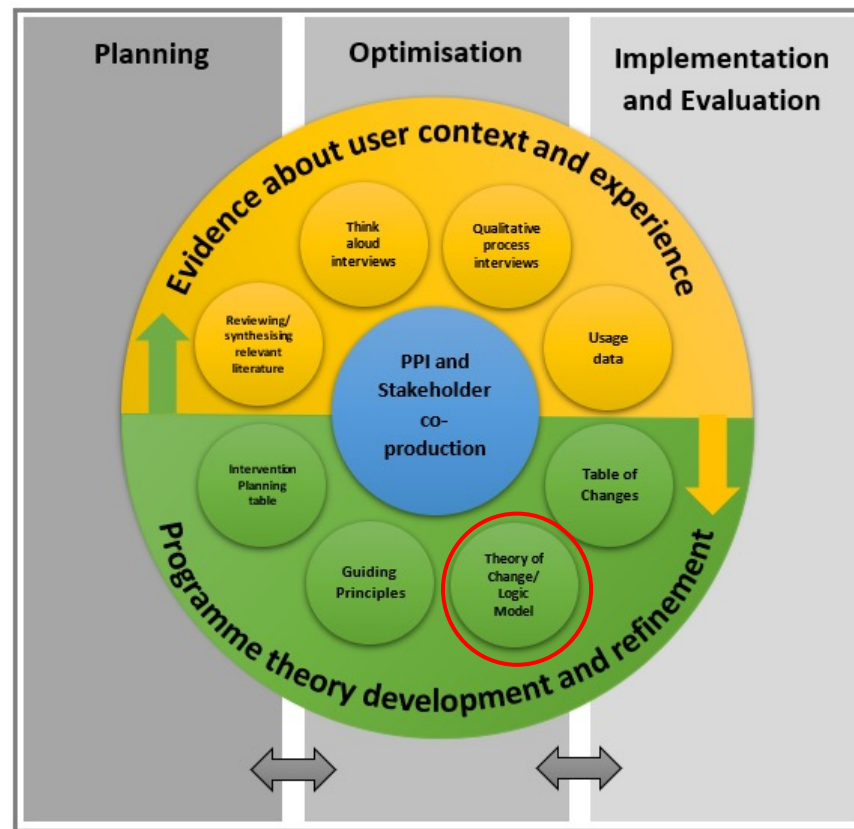
2.3: Logic model

- **Purpose:**
  - To model the hypothesised mechanisms of action of the intervention (i.e. how it is thought to work)
  - Provides a check that the intervention design features and components are appropriate

- **Method:**
  - Drew upon the MRC process evaluation guidance
  - Creates a testable model that outlines how the different intervention components are hypothesised to affect outcomes.

Problem	Intervention targets	Intervention techniques	Intervention processes TDF (COM-B)	Purported mediators	Primary Outcome
Raised BP	Appropriate change to medication when average BP readings are above recognised targets.	Plan 3 medication changes per patient in advance	Set goals (Reflective motivation)	↑ N of med changes made by HCPs	Reduce systolic BP at 12 months
		Timely, relevant prompts to inform HCP of patient readings and recommended action. Facilitate HCP access to digital intervention	↑ Environmental resources (Physical opportunity)		
		Provide evidence and rationale for BP targets and need for medication change. Provide information to reassure HCPs that stroke patients are able to self-monitor and self-manage BP. Reassure patients about medication change at baseline review	↑ Positive beliefs about consequences of changing medication (Reflective motivation)		

Summary of intervention planning

- **Review of the evidence**
  - This is important to identify possible barriers and facilitators to your target behaviours
  - If there is already enough qualitative literature out there, you can do a scoping review to collate it
  - If not, you can do interviews with your target population about the target behaviours.

- **Guiding principles**
  - Summarised distinctive design objectives and features of the intervention.

- **Behavioural analysis and logic modelling**
  - Comprehensively described the intervention in widely recognised theoretical terms and its potential mechanisms of action.

Intervention development and optimisation

- Further 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 – *helpful for digital/booklet based interventions*
  2. Retrospective or longitudinal interviews: experiences of using the intervention in the real world
  3. Triangulation with quantitative data about how people use the intervention

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 in digital interventions
  - Iterative development
  - Saturation in this context…
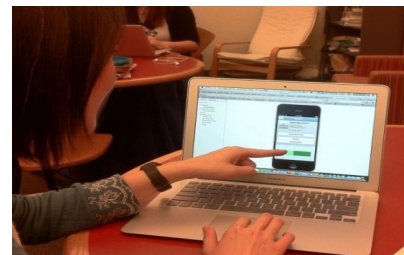
Think aloud interviews: Tips

- ✓ Practice being a participant

- ✓ 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

- ✓ Combine with semi-structured interviews and/or longitudinal interviews

- ✓ Elicit negative views as well as positive ones

- ✓ Take notes

How do you incorporate conflicting user experiences?

I hate that feature

I love that feature

What is that feature?

I don't really mind either way
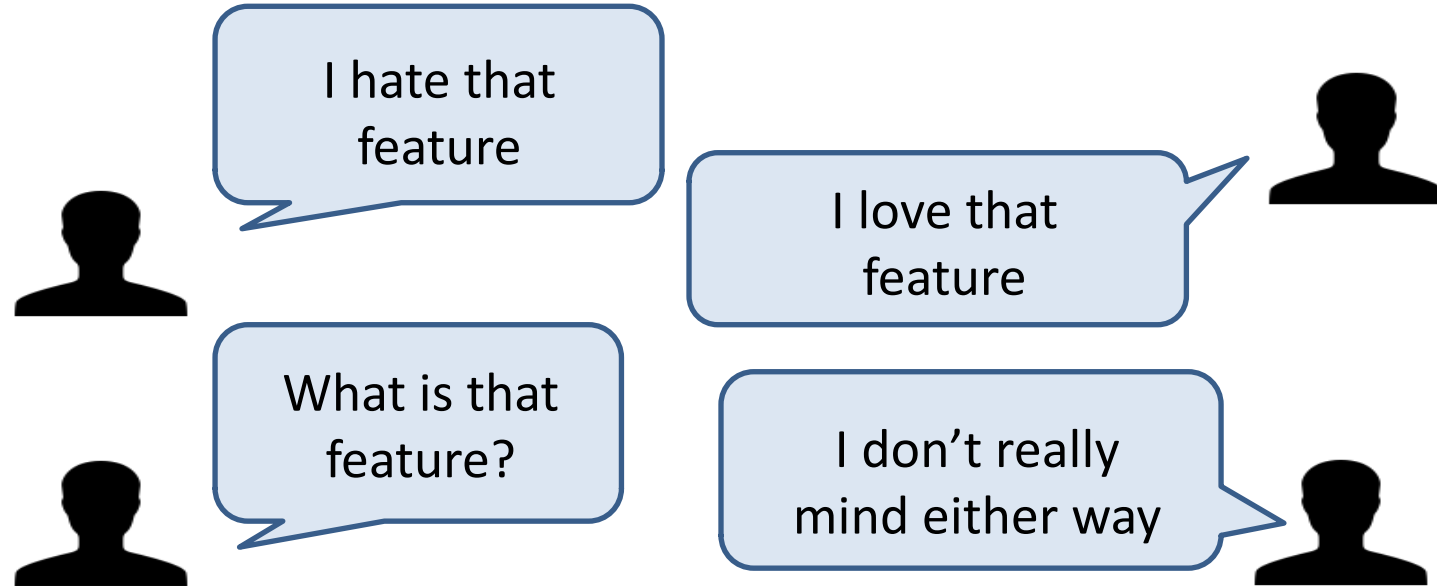
Making person-based changes

Making person-based changes: The decision process

1. Conduct interview
2. Transcribe interview
3. Read transcript
4. Extract negative and positive verbatim comments
5. Tabulate comments
6. Consider and implement modifications

Making person-based changes: The decision process

Page or aspect of intervention (e.g. Page 1 Welcome)					
Negative Comments	Positive Comments	Possible Change	Reason for change	Agreed change	MoScoW

Coding framework

Code	Stands for	Means
IMP	Important for behaviour change	This is an important precursor to behavio... motivation, engager... line with the Guiding... unconvinced by an a... motivational examp...
EAS	Easy and uncontroversial	An easy and feasible... For example, a parti... definition.
REP	Repeatedly	This was said repeat...
		This is supported by...

Criteria	Means
Important for behaviour change	• Likely to impact behaviour change or a precursor to behaviour change (e.g. acceptability, feasibility, persuasiveness, motivation, engagement) • Or is in line with the Logic Model/Guiding Principles
Easy and uncontroversial	Easy change that doesn't involve major design changes
Repeatedly	Said repeatedly, by more than one participant
Experience	Something supported by experience from • Patient and Public Involvement panel • Experts (e.g. clinicians) • Evidence from the literature.
Does not contradict	Does not contradict experience, Logic Model, or Guiding Principles
Not changed	• e.g. Not feasible

Table of changes: Deciding when to modify the intervention

Criteria for prioritising which modifications to make (MoSCoW)	
Must have	This modification must be made in order for the intervention to be effective in changing a participant's behaviour (given what we know about the evidence base).
Should have	This modification should be made if possible as it may impact effectiveness, but may be able to be delivered in a different way, or is in some way less critical than a Must have.
Could have	This modification would be useful, but may be less critical to behaviour change than a 'should have' and may only be implemented if time and resources are available.
Would like	This modification is not needed to support behaviour change, but could be appealing or nice to have if time and resources allow.

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.

UNIVERSITY OF
Southampton CCCAHP
Centre for Clinical and Community Applications of Health Psychology

Strength and Balance Concerns pages					
Negative Comments	Positive Comments	Possible Change	Reason for change	Agreed change	MoScoW
"I very seldom make plans to go and visit the doctor. And I certainly wouldn't regarding this, I think." (P1) "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) 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)		Suggest individuals discuss with family member/ friend first if they are unsure.	**EAS, REP, EXP** – participants mindful of high demand on GP and don't feel this is necessary/ feel able to make decision themselves. Resonates with views of GP coinvestigator	Suggest individuals discuss with family member/ friend first if unsure. If still concerned after this then ask advice of GP	M

FUNDED BY
NIHR | National Institute for Health Research

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, talk it through with a friend or family member first. If you still have concerns after this, you could check with your doctor.

Brain Training: previous user stories					
Negative Comments	Positive Comments	Possible Change	Reason for change	Agreed change	MoScoW
"It's not something that would interest me. I'm sure there are people it would interest but me, not interested. Nah. I think it's one of those things, you've said yourself, you're gonna do this Brain Training, the only reason you're gonna do it is because you're convinced that it'll possibly help you in some way or another, so you're already convinced, you don't [need] stories." P3	"Yes, again it's interesting to see just the different way people think about it and how to get their target, so yes the stories are good." P4	Reduce/remove 'stories' OR No action	**NC**	None required – stories are already an optional page in this section, and multiple other users expressed liking these stories/finding them encouraging	

Active Lives
Breaks from Sitting

Get yourself moving at home

The best way to get yourself up and moving is to place things you need further away from where you usually sit or lie down.

Ideas:
- Put the TV remote on the mantelpiece or next to the TV
- Put your drink on the mantelpiece or in the kitchen
- Leave your phone in the hall or on a table further away from you
- Leave your bedtime book or magazine on the kitchen table
- Keep snacks in the kitchen so you get up when you want them
- Put the tea and coffee further away from the kettle

Click here to read Sue's story about moving more.

Click here for ideas on how to get moving at work.

Back

UNIVERSITY OF
Southampton CCCAHP
Centre for Clinical and Community Applications of Health Psychology

Ideas about breaking up sedentary time					
Negative Comments	Positive Comments	Possible Change	Reason for change	Agreed change	MoScoW
"I mean these are…, leaving your phone in the hall, you've always got your mobile on you, haven't you?" P5 "Leave your bedtime book on the kitchen table. I don't get that one" P6		Remove and/or replace these suggestions	**IMP, REP**	Replace suggestions with ideas about introducing small movements into otherwise sedentary activities	M

ActiveBrains

FUNDED BY
NIHR | National Institute for Health Research

Making person-based changes: The decision process

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

In conclusion: putting the PBA into practice

- It can be flexible - many different combinations of qualitative, mixed methods and PPI 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 information here:

https://www.lifeguideonline.org/pba

Read more …

Tutorial papers:

- Yardley, L., Morrison, L., Bradbury, K., Muller, I. (2015). The person-based approach to intervention development: Application to digital health-related behaviour change interventions. *Journal of Medical Internet Research, 17*(1), e30.

- Band, R., Bradbury, K., Morton, K., May, C., Michie, S., Mair, F. S., Murray, E., McManus R. J., Little, P. & Yardley, L. (2017). Intervention planning for a digital intervention for self-management of hypertension: a theory-, evidence-and person-based approach. *Implementation Science, 12*(1), 25

- Morrison, L., Muller, I., Yardley, L., & Bradbury, K. (2018). The Person-Based Approach to planning, optimising, evaluating and implementing behavioural health interventions. *Bulletin of the European Health Psychology Society*, 20(3)

- Bradbury, K., Steele, M., Corbett, T., Geraghty, A., Krusche, A., Heber, E. D., Easton, S., Cheetham-Blake, T., Slodkowska-Barabasz, J., Muller, A. M., Wilde, L. J., Smith, K., Payne, L., Singh, K., Bacon, R., Burford, T., Summers, K., Turner, L., Richardson, A., ... Yardley, L. (2019). Developing a digital intervention for cancer survivors: An evidence, theory and person-based approach. npj Digital Medicine, 1-13.

Thank you and Questions???

The PBA team (ever evolving!):
Lucy Yardley, Leanne Morrison, Ingrid Muller, Judy Joseph, Kate Morton, Rosie Essery, Liz Payne, James Dennison Day, Seb Pollet, Kirsten Smith, Kate Greenwell, Katy Sivyer, Ben Ainsworth, Paul Little, Adam Geraghty and many many more over the years!