



Qualitative Research for Intervention Development and Evaluation: an introduction to the Person-Based Approach

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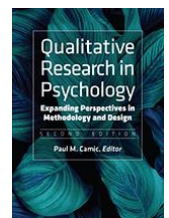
Overview of this talk



- Introduction to the original Person-Based Approach, illustrated by the development of 'Germ Defence'
- Overview of the updated Person-Based Approach
- Using qualitative methods for intervention development
- Using qualitative methods for intervention evaluation and optimisation
- Future directions for the Person-Based Approach

Further reading:

Ch 13. Using Qualitative Research for Intervention Development and Evaluation (L Yardley, K Bradbury, L Morrison) *In P.M.Camic (Ed) (2021) Qualitative Research in Psychology, 2nd edition, APA*



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Overview of the Person-Based Approach

Aim: to understand and accommodate the perspectives of the people who will use the intervention, to improve acceptability, feasibility, engagement and outcomes

Methods:

- extensive, in-depth, iterative qualitative research to gain understanding of user perspective and key context-specific behavioural issues
- involve wide range of people from target user populations
- iterative process throughout planning, development, deployment

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Evolution of the Person-Based Approach

- Evolved from developing >20 (now >50) health interventions – mainly digitally delivered
- Drew on >1000 (now >2000) qualitative interviews with users
- Validated by evidence from trials of our intervention effectiveness published in top journals (Lancet, BMJ etc.)

Yardley et al. 2015, JMIR
[10.2196/jmir.4055](https://doi.org/10.2196/jmir.4055)



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Advantages of the PBA



- The PBA uniquely combines **user-centred design methods** with **evidence-based behaviour change methods**
- This ensures that **better uptake and engagement** with intervention actually leads to **offline behaviour change** and **better healthcare outcomes**
- The PBA has been used successfully to develop and adapt interventions that are engaging and effective **for people from diverse cultures internationally and of all ages/abilities**

Rowsell, Muller et al 2015, JMIR
doi:10.2196/jmir.4999



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Related and complementary approaches

- Usability testing, user satisfaction
- User-centred/human-centred design
- Participatory co-production
- Theory- and evidence-based medicine



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Complements theory- and evidence-based intervention development by:

- suggesting which Behaviour Change Techniques (BCTs) most important in a particular context; identifies theory- and evidence-based BCTs that are most acceptable, salient, feasible for target population
- providing guidance on how best to implement selected BCTs, and avoid or modify intervention characteristics that are disliked, impractical
- suggesting when need to **create** new intervention characteristics, hence not yet evidence-based

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Applications of the PBA to digital health

- Have developed interventions for **patients and health-care professionals (primary and secondary care)**

Cost-effective interventions developed for:

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



Healthy living with diabetes



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A brief illustration: the original Germ Defence



Development of an intervention to reduce the spread of respiratory infection in the home

- WHO/DoH advised hand-washing during 2009 'swine flu' pandemic to prevent spread of infection – but no evidence-based interventions to support behaviour change in the general public
- We developed the first online intervention worldwide proven to increase handwashing and reduce infection transmission in the home

Based on:

- A) key theory and evidence-based behaviour change techniques
- B) designed and optimised using in-depth, iterative qualitative research into user views

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1. Qualitative user needs studies

Focus group studies used to investigate which infection control behaviours were most acceptable and feasible

Findings

Social distancing: least acceptable as prevents caring for family

Cough/sneeze hygiene: very acceptable but scepticism about feasibility

Handwashing: acceptable and seen as feasible

Morrison & Yardley 2009, BMC Public Health
<https://doi.org/10.1186/1471-2458-9-258>

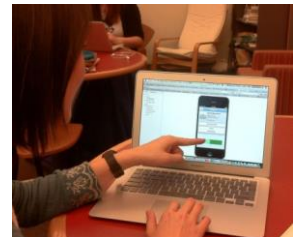


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2. Qualitative 'think-aloud' studies

Think aloud interviews

- Ask participants to use the intervention and **say out loud any thoughts that come to mind**
- Good for:
 - Assessing immediate reactions to intervention content (particularly negative reactions!)
 - Observing how an intervention is used
 - Assessing iterative modifications



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2. Qualitative 'think-aloud' studies of draft web-pages for Germ Defence

Iteratively evaluated 28 users' immediate reactions to prototype website to find out what needed to be changed to make it more engaging and effective

Format-related findings

e.g. wanted quizzes with feedback, larger font

Content-related findings

e.g.

False beliefs – viruses are airborne so handwashing not relevant to infection

Social facilitator – didn't want to be seen as having dirty hands!

Practical barrier – forgetting



Yardley, Miller et al 2011, J Health Psychol
<https://pubmed.ncbi.nlm.nih.gov/20929941/>

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Finalised content: explained manual infection transmission

Why washing your hands is the best way to protect yourself and others

Germs can live for hours outside the body.

They settle on surfaces after being **breathed out**.

They get on infected people's hands when they **cough and sneeze, or touch their face**.

They are on surfaces **touched by infected people's hands**.

You can then pick them up:

By **eating food** without washing your hands first.

Or **touching an infected surface** e.g. a cup, door handle, stair rail, computer keyboard, shop counter, and money. Then **touching your face** either consciously like scratching an itch, or automatically like rubbing your eyes.


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Click Next for more about protecting yourself

[Next](#)

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Harnessed key emotion – disgust

GermDefence

When could you wash your hands more?

It is hard to know if hands are dirty just by looking at them - they can have lots of germs on them but still look clean.

The more you wash your hands, the better protected you and the people you live with are from illnesses.

To help do this, you can **choose your own hand washing plan**. This plan can help you wash your hands **MORE** than you do already, such as:

- by committing to washing your hands at certain times.
- and then helping to remind you when to wash them.

On the next page is the table showing how much you have washed your hands UP TO NOW.

To choose your plan you can click on a new button to show how much you want to wash them IN THE FUTURE.

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Used automatic context prompting to build new, offline habits

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GermDefence



How often do you wash your hands?

If you think about how much you have washed your hands over the last week, which circle best describes each activity?
Please click on one circle for each activity.

Over the last week I washed my hands:	almost never	some times	quite often	very often	almost always
Before I ate a meal	☐	☐	☐	☐	☐
Before I ate snacks e.g. crisps, fruit, sweets	☐	☐	☐	☐	☐
After I went to the toilet	☐	☐	☐	☐	☐
When I came into the house e.g. after work, shopping, traveling	☐	☐	☐	☐	☐

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Involved family/home for offline prompting and social support

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GermDefence



Helping remind you to wash your hands

Now you can decide what you think would be the best way to use your plan and help remind you to wash your hands.

For example, you could:

Print a copy of your plan - [click here](#).

Sign it and keep a copy.

Put it up around your house.

Show it to someone else and ask them to help remind you.



© Laura Connolly 2008

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Original Germ Defence: findings/impact

- Intervention trialled in > 20,000 adults
- Reduced respiratory infections - frequency, severity, consultations, antibiotics use (published in Lancet, 2014)
- Benefited family members, gastrointestinal infections
- Effective for people with lower education levels
- Adapted for Covid-19 and used by > 600,000 people worldwide

Little et al 2015, Lancet
[http://dx.doi.org/10.1016/S0140-6736\(15\)60127-1](http://dx.doi.org/10.1016/S0140-6736(15)60127-1)

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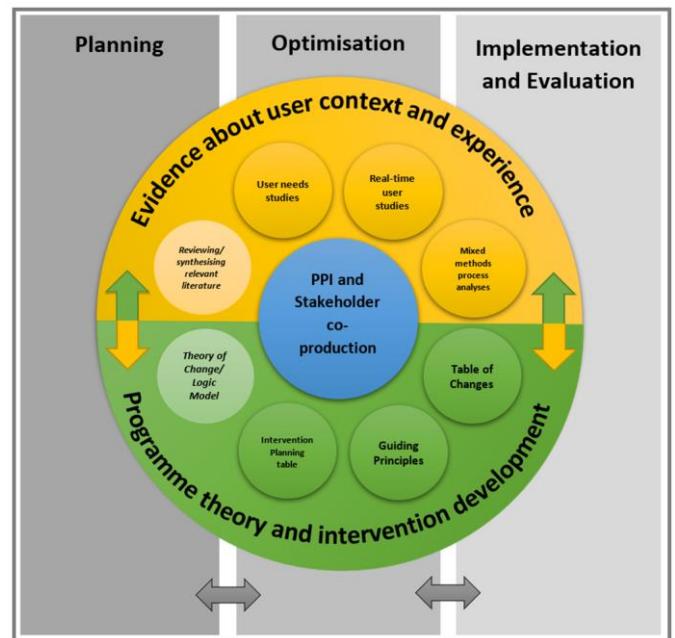
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Overview of the updated Person-Based Approach

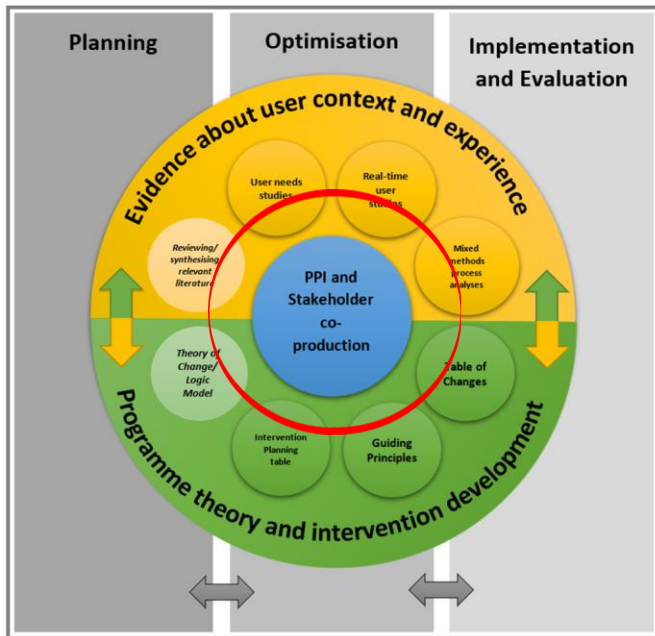
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Key updates:

- Central role for PPI and stakeholder co-production



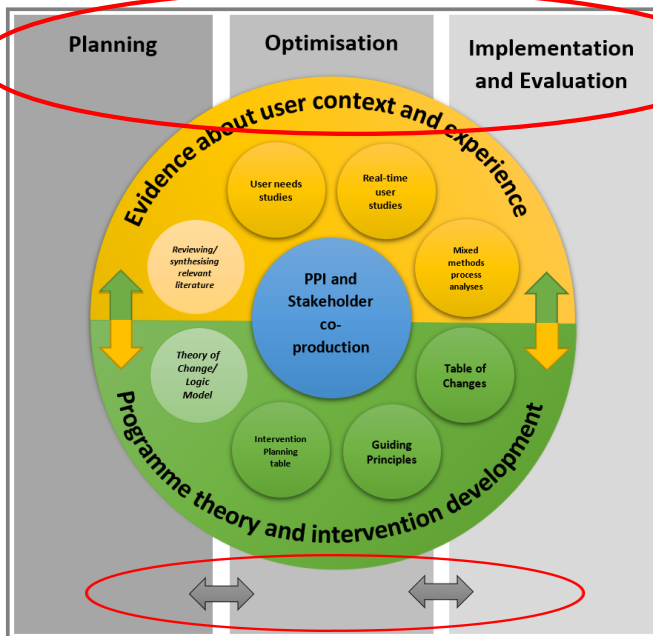
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PPI and stakeholder involvement in the PBA includes:

- Contributing as an essential part of the core research team to all key decisions about intervention planning, optimisation or implementation
- Contributing to one or more additional consultations – e.g. workshops, focus group discussions, online commentary

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Key updates:

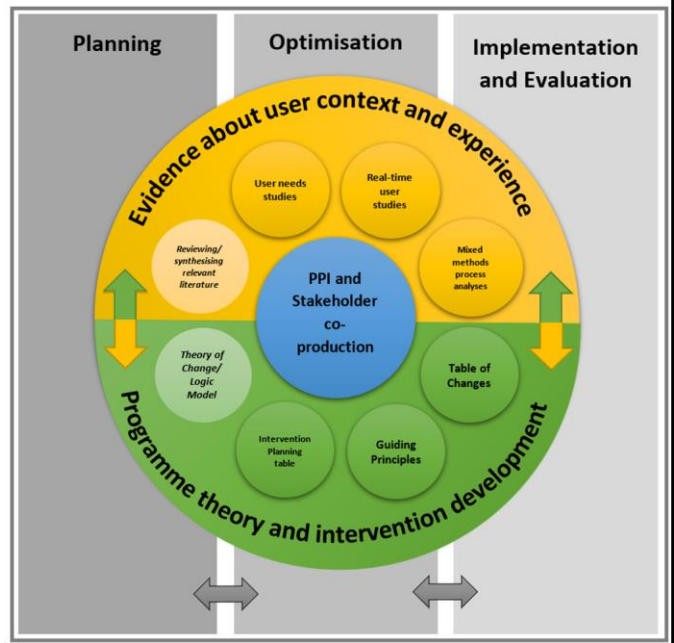
- More emphasis on cyclical nature of intervention and theory development and refinement

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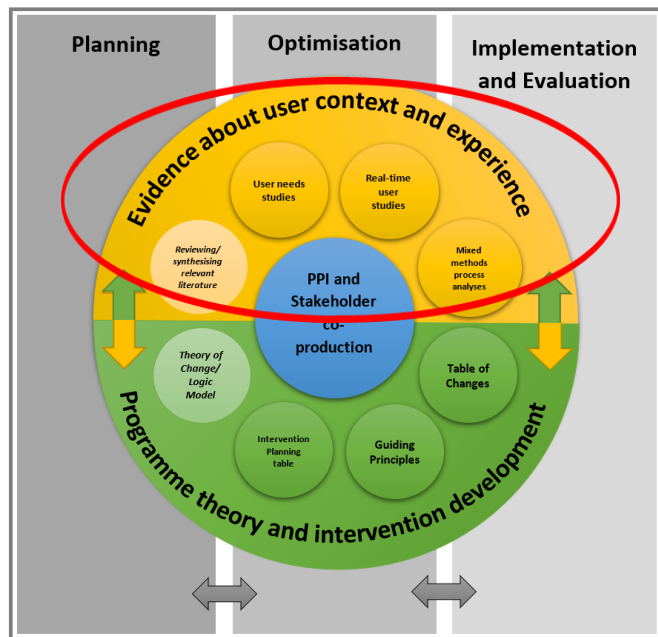
Overview of the updated Person-Based Approach

Key updates:

- Increasingly agile and wide-ranging use of methods



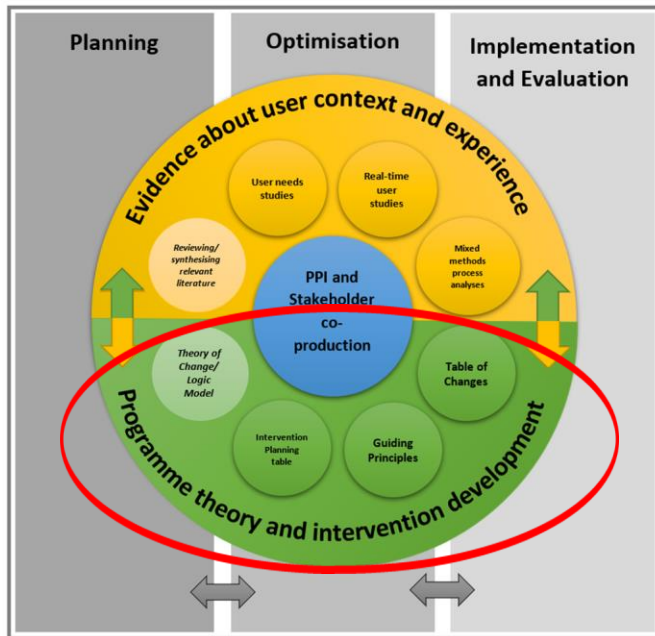
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Useful methods of collecting evidence about user context and experience include:

- reviews and **qualitative syntheses** of existing theory and research (e.g. thematic synthesis, meta-ethnography)
- **qualitative** and quantitative studies of user needs (e.g. interviews, ethnography)
- **qualitative** real-time studies of users' immediate reactions to each element of the intervention (e.g. think-aloud studies)
- **qualitative** process analyses of user experiences of engaging with interventions over time in real life
- **quantitative** process analyses of how intervention usage relates to outcomes and user characteristics – triangulate with qualitative findings

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The programme theory explains how the intervention should achieve its goals.

- The standard logic model describes how the key elements of the intervention should lead to intended outcomes.
- The PBA also uses **Guiding Principles** as a brief summary of key ways in which the intervention design should support engagement by meeting user needs
- The PBA uses the **Intervention Planning Table** and **Table of Changes** to record in detail why intervention elements were selected or changed

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Illustration: development of 'guiding principles' for HOME-BP

- Digital intervention to support management of uncontrolled hypertension
- Patient self-monitoring of blood pressure, medication changes, lifestyle changes with health care professional (HCP) support.
- **Feasibility study - Qualitative Process Evaluation:**
 - Interviews (15 patients, 3 HCPs)
 - Focus Groups (8 HCPs)



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Qualitative findings

Patients were not motivated to make lifestyle changes

"The diet and the exercise and all that, I just ignored them, they were mostly platitudes that everyone knows about anyway... I didn't do (the lifestyle changes), again, because there's no one threatening me. [laughter]... It was all things I knew, so and that's because I've had high blood pressure for so many years...I don't do exercise because I always, I always get injured because of arthritis and gout and things like that. So I can't do a lot of the things that they wanted me to do."

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Patients reported practices not following the protocol

"The communication was abysmal...I got what was called an amber alert which told me that my blood pressure was high and I had to go and see a doctor. So I made an appointment and none of the reception staff knew what the study was about, none of the nurses – and the doctor asked me what an amber alert was and I had to explain to her...So I said – well an amber alert is when your blood pressure is high for, you know, a long period of time and they tell you to come and see the doctor. I felt quite let down."

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Interviews/ focus groups with HCPs indicated that they:

- 1- Hadn't been checking the study emails
- 2- Didn't remember the training, so couldn't implement medication changes
- 3- Were reluctant to make medication changes

**Your Personal Blood Pressure
Management Programme**



BLOOD PRESSURE
home management programme

BP Home Management

How can HOME BP help you to control your high blood pressure?

HOME BP can help you to control your BP in two ways:

1. By monitoring your blood pressure at home for one week every month.
2. By making changes to your medication with your GP.

You can read more about each of these over the next few pages.



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Guiding Principles for HOME BP

Intervention design objective	Key features
1- To facilitate implementation of medication changes by practice staff	Automation of practice-patient interaction to make medication changes as easy and well-controlled as possible 1) All training online and patient could not be recruited until training completed. 2) Prescriber emailed directly to make medication changes by issuing a template prescription (avoiding the need for a consultation).
Intervention design objective	Key features
2- To motivate practice staff to undertake medication changes	1- Education for staff about benefits of medication changes and study procedures (e.g. evidence of need and efficacy) 2- Addressed concerns of patients and staff about medication side effects (e.g. reassurance, methods to seek advice)

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Making person-based changes: A systematic decision process

1. Conduct interview and transcribe interview
2. Extract negative and positive verbatim comments
3. Tabulate and code comments in '**Table of Changes**'
4. Whole intervention development team (including PPI members) agree and implement modifications

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Making person-based changes: The table of changes

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 behavior 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

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Coding framework		
Code	Stands for	Means
IMP	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.
EAS	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.
REP	Repeatedly	This was said repeatedly, by more than one participant.
EXP	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 on your development team) agree that this would be an appropriate change. 3. Literature: This is supported by evidence in the literature.
NCON	Does not contradict	This does not contradict experience (e.g. evidence), or the Logic Model, or the Guiding Principles
NC	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).

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Illustration: using think-aloud interviews and the Table of Changes to optimise 'Renewed'

Renewed is an online intervention recently trialled in 2,500 cancer survivors recruited from primary care

Aim is to improve Quality of Life and prevent cancer recurrence by supporting healthy changes.

Healthy changes include:

- Increasing physical activity
- Improving mood
- Healthy diet ('Eat for Health') - or weight loss if needed



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Think-aloud interviews

- 32 participants with breast, bowel or prostate cancer each took part in 3 interviews
- Data were recorded in the table of changes and used to inform intervention modifications
- Continued until 'saturation' (no further important modifications required)

I'm really sorry but I couldn't give a stuff...it's of no relevance to me whatsoever and you've completely lost me. 'It's not just good for you, it's good for the whole planet' – you're going in a completely different direction here. This is propaganda for Greenpeace or whoever you want to be and you've lost me as an old person.

I mean, we eat meat for energy, don't we. Now, it may be that we eat too much meat, it may be we eat the wrong sort of meat. I wouldn't disagree with the 'eat less red meat' and 'eat less processed meat'. But, let's face it... Meat is a convenient source of energy.

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Eat for Health: Table of Changes

Aspect of intervention	Negative comments	Suggested change	Reason for change	Priority (MoSCoW)	Agreed change (if no change agreed, explain why)
Fun quiz on 'Benefits of making a change'	Participants found discussion of how reducing meat intake could help the environment off-putting.	Removed mention of this wider benefit from the quiz.	IMP EAS REP (by 2 people)	Must have	Agreed
Promotion of meat-free or 'plant-based' diet	Multiple participants commented that they felt meat was an important part of their diet	Cut mention of reducing meat generally, instead refer to cutting down red and processed meats	IMP REP	Must have	Agreed

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

- **Systematic**
 - Records all comments and all changes, increasing transparency
 - Prompts careful consideration of why a change should/should not be made – useful for discussions with diverse stakeholders
- **Supports efficient use of wider research team input**
 - Filters what needs to be discussed
 - Allows (remote) input from all stakeholders



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In conclusion: putting the PBA into practice

- Not prescriptive and constantly evolving - many different combinations of qualitative, mixed methods and PPI/stakeholder co-production can be used
- Can be used for any kind of intervention
- Not always possible to fully implement - but vital to resource development sufficiently in order to reduce waste from trialling / rolling out interventions that are not optimised for users



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Future directions for the Person-Based Approach community

Person-Based Approach continues to evolve as needed for new applications

- now being used for optimising official guidance, participant recruitment and other study procedures and materials (e.g. questionnaires)
- has been applied to non-written interventions, e.g. to co-produce and optimise an art psychotherapy intervention for children with complex mental health needs

Person-Based Approach continues to grow as a community

- Person-Based Approach academic community now broadly based across many institutions internationally, including in LMICs (e.g. China, India, Africa)
- Person-Based Approach also increasingly used by practitioners based in non-academic organisations, including public health, NHS, private sector SMEs

See our website to access all the resources and publications mentioned in this talk, online tutorials and sign-up for news and online workshops: www.personbasedapproach.org