



ECAS7011

INTERVENTION DEVELOPMENT AND
APPLICATION: FROM INDIVIDUAL HEALTH TO
PUBLIC HEALTH

DR CERI PHELPS

Interventions: changing health behaviour:

- ▶ Many of the risk factors for disease and illness are behavioural e.g.
 - ▶ eating behaviour
 - ▶ smoking
 - ▶ lack of exercise
- ▶ Ability to change behaviour key to tackling many of the health issues in society today

What is an intervention?

- ▶ **interventions** in health psychology are planned actions aimed at bringing about change in people's health
- ▶ A wide range of intervention strategies exist
- ▶ Often involves structured activities used to modify behaviour, emotional state, or feelings

Developing interventions to change health-related behaviour

- Health psychology theory provides a framework for:
 - 1-understanding behaviours and beliefs and ;
 - 2-exploring how these factors may relate to illnesses.
- These theories have drawn on:
 - 1- social cognition models,
 - 2-implementation intentions and ;
 - 3-the self regulatory model to inform interventions aiming to change behaviours and beliefs.

Implementation of evidence-based practice

- ▶ Often depends on changing multiple behaviours across many individuals/groups
- ▶ Using behaviour change theory and evidence can result in more effective implementation as allows us to better map and understand the behaviour change process
- ▶ not always done well (if at all!)

Implementation of evidence-based practice

- ▶ Davies, Walker, & Grimshaw, (2010): review of 235 healthcare guideline development and implementation studies found only 22.5% were judged to have used theories of behaviour change, 16.6% of studies using a single theory. 4.3% used only selected constructs from theories
- Michie & Prestwich (2010): While use of a single theory may be appropriate and lends itself to theory testing, in many cases the selection has not been justified and the theory is not tested

Use and usability: are theoretical models of behaviour change practical?

“Theoretical models have considerable potential for reducing muddle, enhancing models and guiding “meddling” in the process of behaviour change. But is there a gap between current “use” and potential “usability”?”

“There may be nothing quite so practical as good theory, but only if the good theoretical model is used well in practice”

Marie Johnston, Emeritus Professor of Health Psychology.

Use and usability: are theoretical models of behaviour change practical?

Johnston (2014): Three main functions of models of behaviour change:

- ▶ Reducing the muddle: define constructs so that users know when they are exploring the same – or different – phenomenon
- ▶ Modelling the process: define relationships between constructs so that the process of behaviour change can be modelled
- ▶ Guiding meddling: through identification of causal determinants of behaviour, can be used to intervene to achieve behavioural outcomes

Use and usability: are theoretical models of behaviour change practical?

Johnston (2014): Potential problems:

- ▶ Can only achieve these three things if used well
- ▶ Are there too many non-distinct constructs?
- ▶ Do we only measure the “easy bits”?
- ▶ Confused measurement of constructs may increase muddle
- ▶ Do they predict and explain difference between and within people?

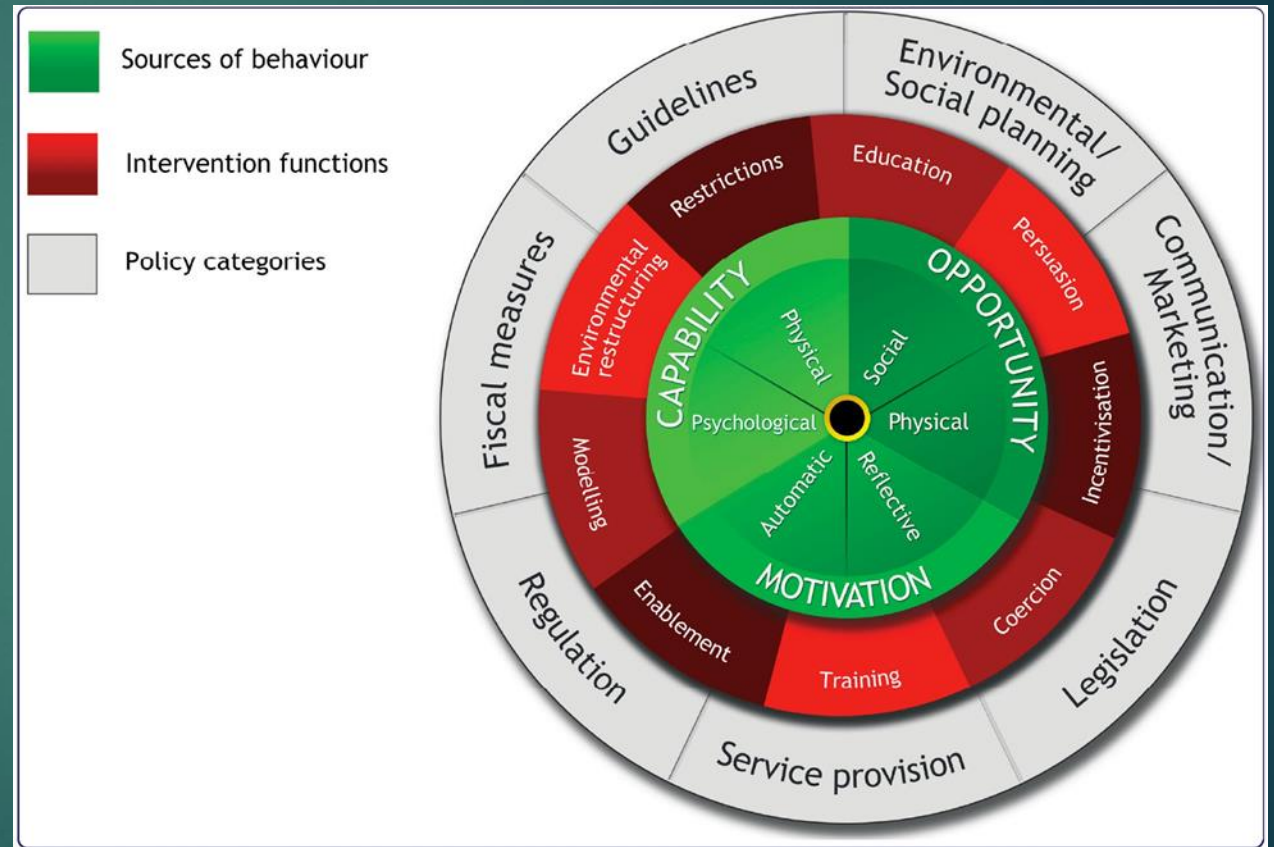
Use and usability: are theoretical models of behaviour change practical?

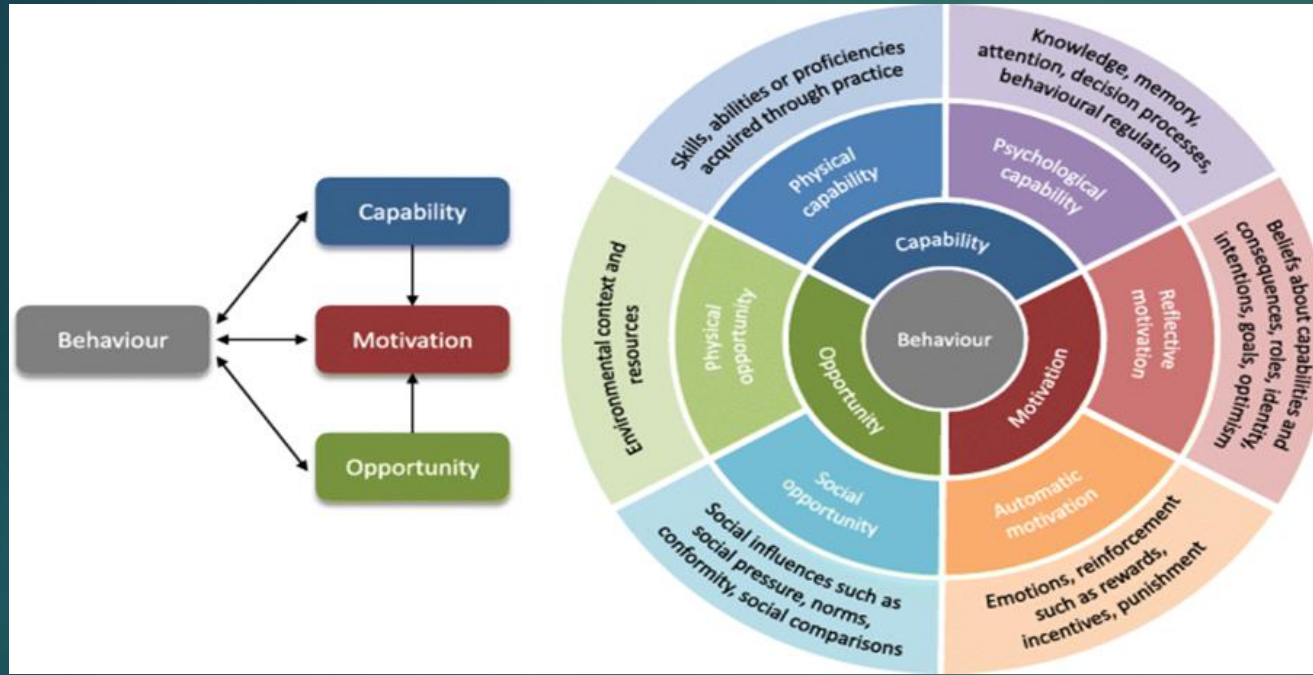
Johnston (2014): Evidence needed to guide interventions

- ▶ WHO: to select recipients or tailor interventions? Evidence of moderation
- ▶ WHAT: target constructs for intervention
- ▶ HOW: choose intervention techniques based on evidence

Recap: The Behaviour Change Wheel

- ▶ The COM-B model (Michie et al., 2011) lies at the core of the BCW
- ▶ Identifies different intervention strategies that can be applied to any of those components of the COM-B
- ▶ Provides general intervention strategies/categories that can be linked to



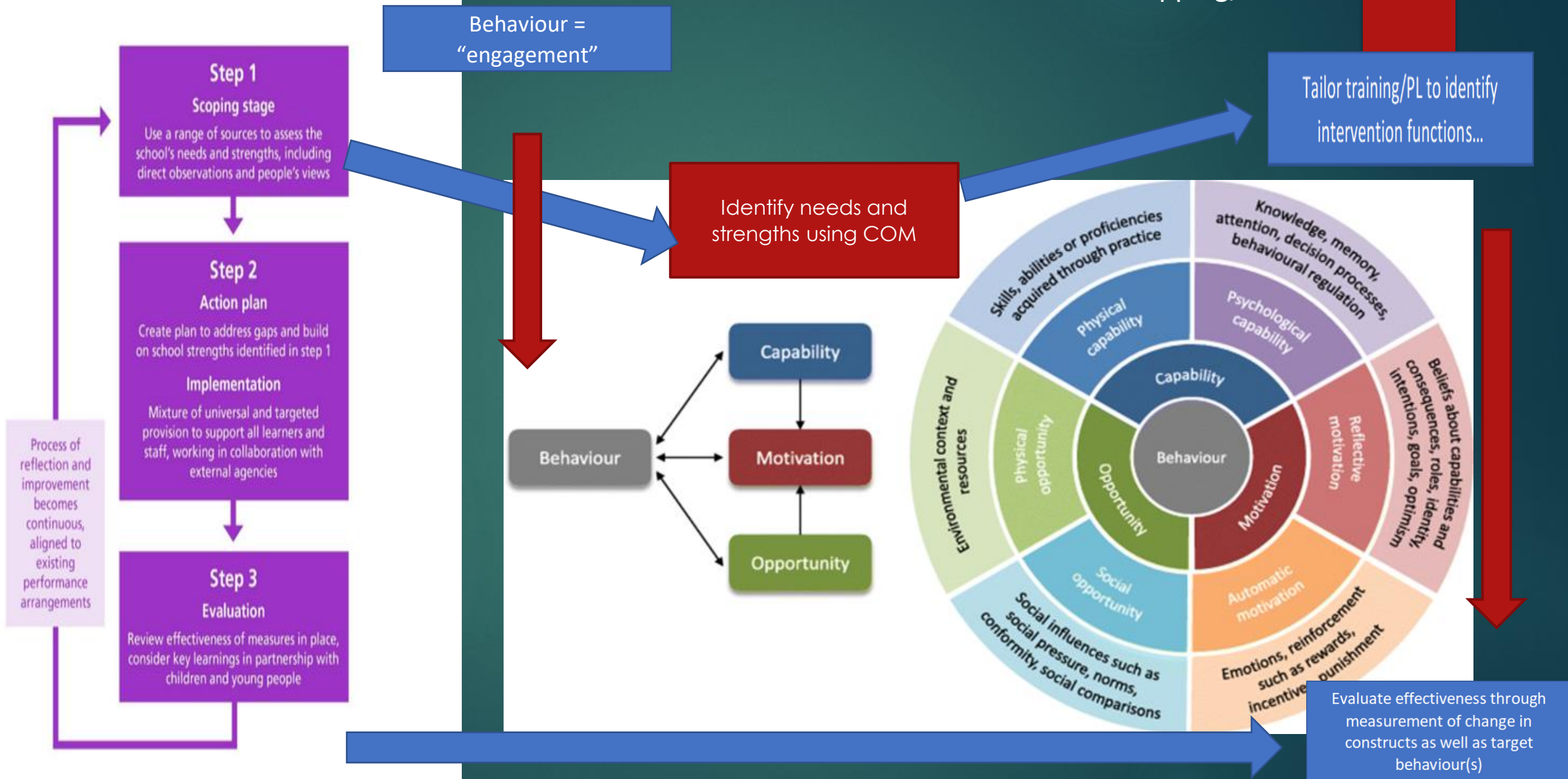


The COM-B model and behaviour change interventions

Michie, S., Atkins, L., & West, R. (2014). *The behaviour change wheel. A guide to designing interventions*. 1st ed. Great Britain: Silverback Publishing, 1003, 1010.

COM-B Model

Intervention Mapping/Content



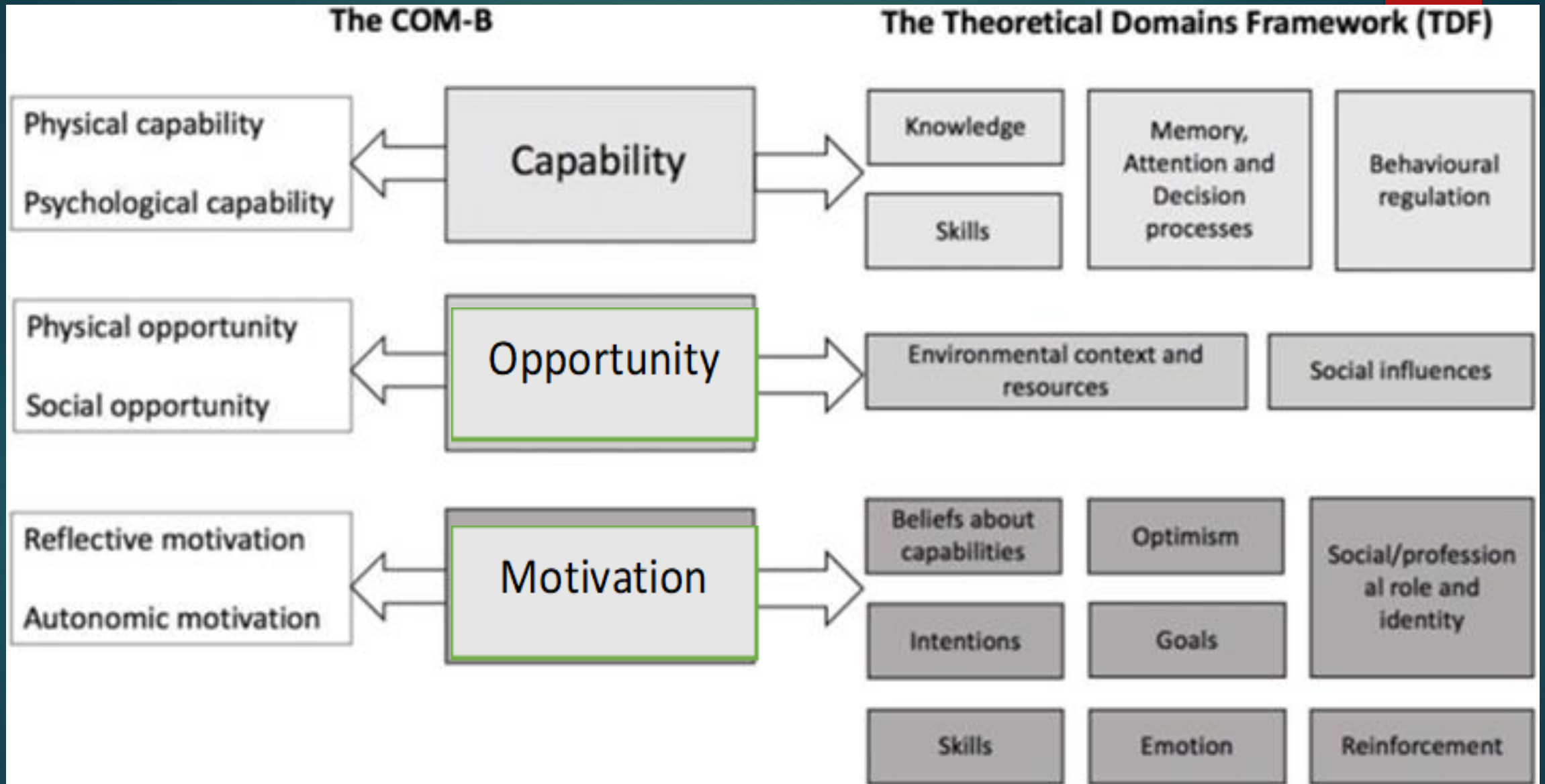
BCW Stage 1: defining behaviour

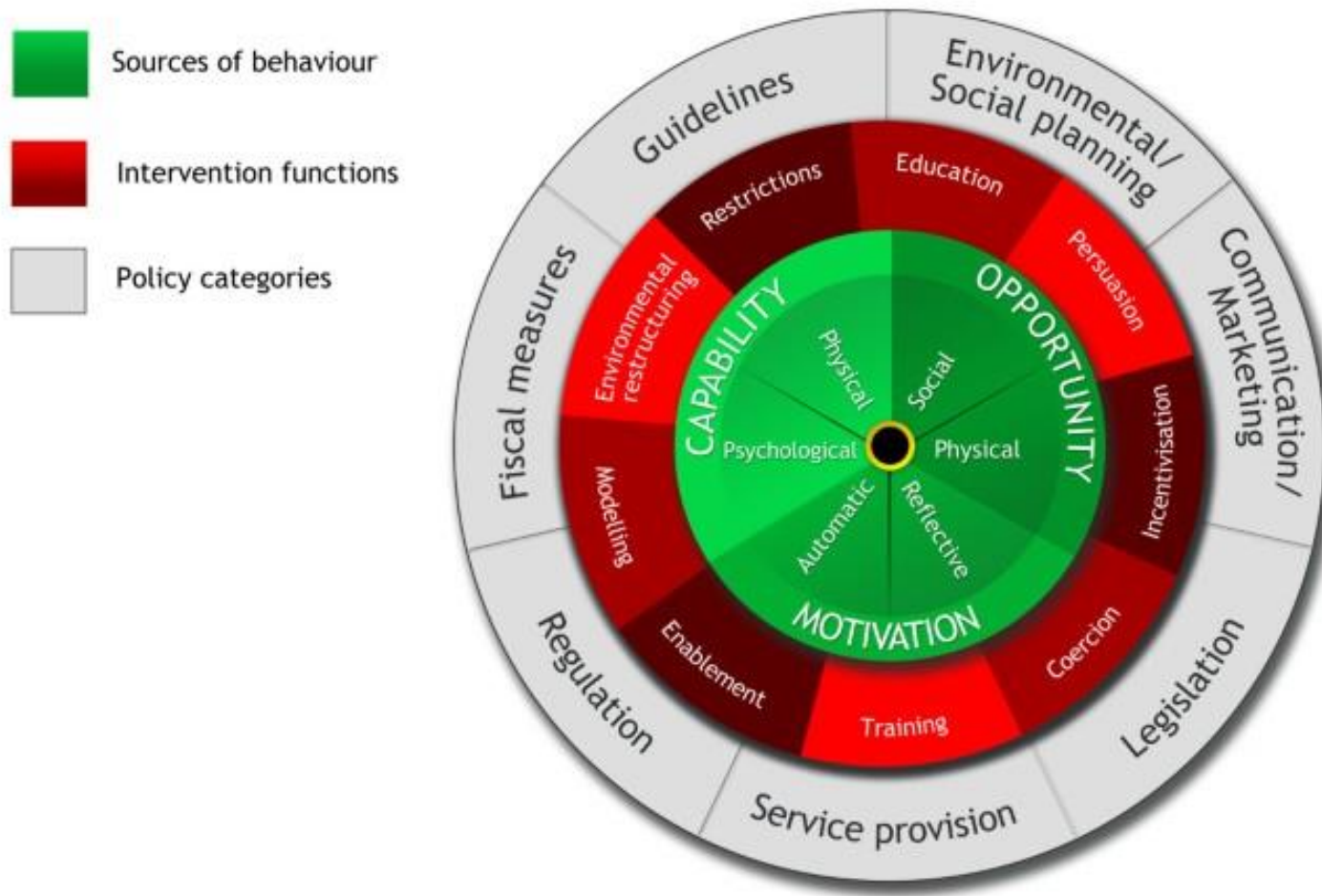
- Why is the behaviour important?
- Who needs to perform the behaviour?
- What does the person need to do differently to achieve the desired change?
- When will they do it?
- Where will they do it?
- How often will they do it?
- With whom will they do it?

In order for behaviour change to occur, the individual, group or organisation would need to:
BCW constructs and how assessed:
<u>Capability</u>
Know more about why it is important
Know more about how to do it
Have better physical skills
Have better mental skills
Overcome physical limitations
Overcome mental obstacles
Have more physical stamina
Have more mental stamina
<u>Opportunity</u>
Have more time to do it
Have more money
Have the necessary materials
Have it more easily accessible
Have more people around me doing it
Have more triggers to prompt me
Have more support from others
<u>Motivation</u>
Feel that you want to do it enough
Feel that you need to do it enough
Believe that it would be a good thing to do
Develop better plans for doing it
Develop a habit of doing it
Something else (please specify):

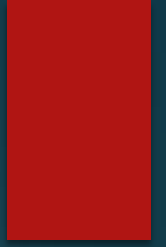
Can identify specific behaviour change techniques using TDF, and specific intervention functions using BHW

Michie S, Johnston M, Abraham C, Lawton R, Parker D, Walker A, on behalf of the 'Psychological Theory' Group: Making psychological theory useful for implementing evidence based practice: a consensus approach. Qual Saf Health Care. 2005, 14: 26-33. 10.1136/qshc.2004.011155





COM-B	Intervention functions
Influencing capability	
Knowledge	Educate about ways of enacting the behaviour
Skill	Train in cognitive, physical or social skills
Strength	Train or enable development of mental or physical strength
Stamina/Endurance	Train or enable development of mental or physical strength
Influencing opportunity	
Time	Train or restructure the environment to reduce time demand or competing time demands
Resources	Restructure the environment to increase social support and cultural norms
Location/Physical barriers	Train or restructure the environment to provide cues and prompts
Interpersonal influences/cultural expectations	Restructure the social environment or use modelling to shape people's ways of thinking
Influencing motivation	
Plans	Educate, train to form clearer personal rules/action plans, and train to remember and apply these plans
Evaluations	Educate or persuade to create more positive beliefs about the behaviour
Motives	Persuade, incentivise, coerce, model or enable to feel positively about the behaviour
Impulses/Inhibition	Train or enable to strengthen habitual engagement with behaviour
Responses	Model desired behaviour to induce automatic imitation



Designing and evaluating interventions

Evaluating interventions in health psychology

- ▶ Interventions must be based on sound empirical evidence
- ▶ Clinicians must be able to justify choice of treatment and show that they are able to deliver it effectively
- ▶ Use of psychological measures to achieve this

Interventions in Health Psychology



Must follow stringent guidelines for assessing clinical effectiveness as any medical treatment

MRC framework

The randomised controlled trial

What is a “complex” intervention?

“Complex intervention research goes beyond asking whether an intervention works in the sense of achieving its intended outcome—to asking a broader range of questions (eg, identifying what other impact it has, assessing its value relative to the resources required to deliver it, theorising how it works, taking account of how it interacts with the context in which it is implemented, how it contributes to system change, and how the evidence can be used to support real world decision making)”

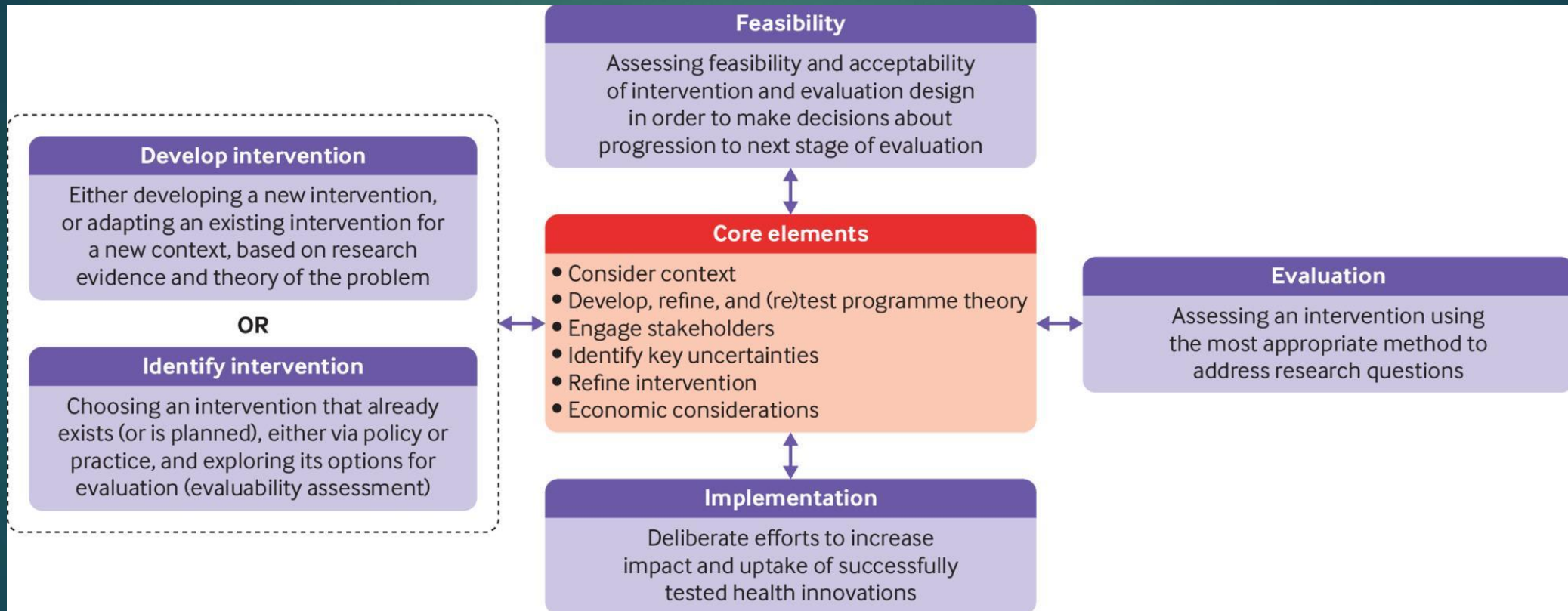
- ▶ The UK Medical Research Council’s widely used guidance for developing and evaluating complex interventions has been replaced by a new framework, commissioned jointly by the Medical Research Council and the National Institute for Health Research, which takes account of recent developments in theory and methods and the need to maximise the efficiency, use, and impact of research.

Developing and evaluating complex interventions

- At each phase, six core elements should be considered to answer the following questions:
 - How does the intervention interact with its context?
 - What is the underpinning programme theory?
 - How can diverse stakeholder perspectives be included in the research?
 - What are the key uncertainties?
 - How can the intervention be refined?
 - What are the comparative resource and outcome consequences of the intervention?

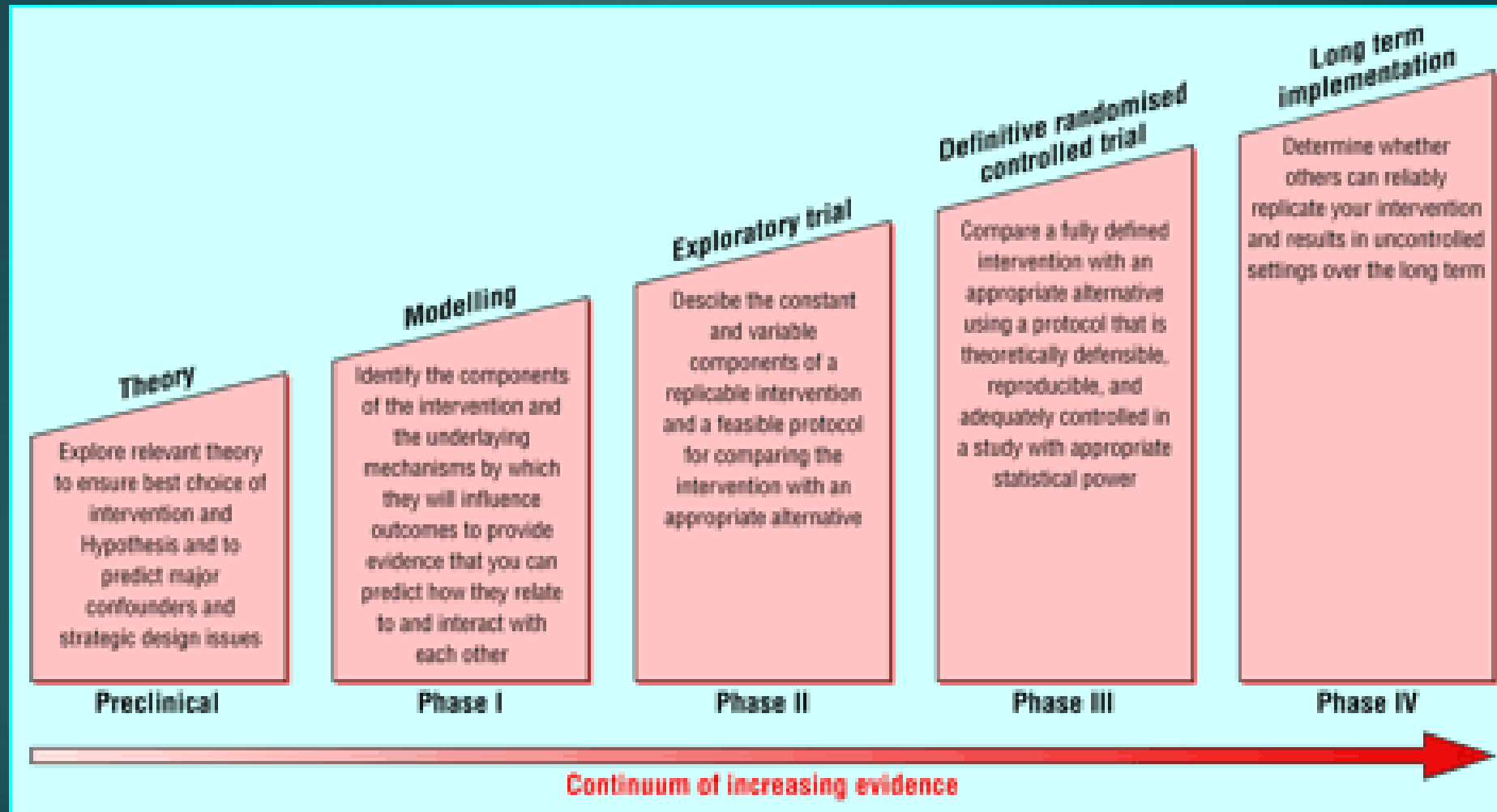
Skivington, K., Matthews, L., Simpson, S. A., Craig, P., Baird, J., Blazeby, J. M., ... & Moore, L. (2021). A new framework for developing and evaluating complex interventions: update of Medical Research Council guidance. *bmj*, 374.

Framework for developing and evaluating complex interventions.



The MRC Framework for developing and evaluating interventions

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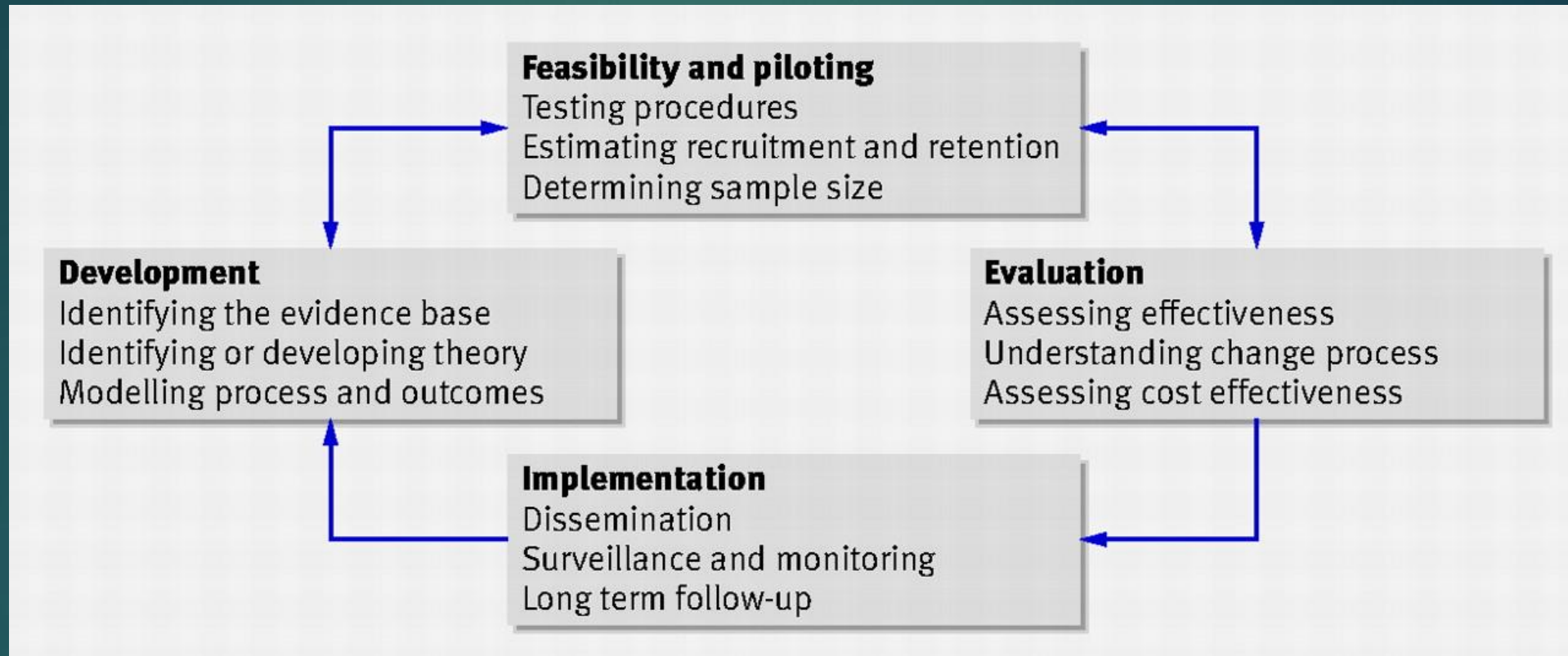
Glanz (2016)

- ▶ The choice of a suitable theory or theories should begin with identifying:
 - ▶ the problem,
 - ▶ goal
 - ▶ units of practice,

“Choice should not be based on selecting a theoretical framework because it is intriguing, familiar, or in vogue. One should start with a logic model of the problem and work backwards to identify potential solutions”

<http://www.esourceresearch.org/eSourceBook/SocialandBehavioralTheories/8ChoosingtheRightTheory/tabid/743/Default.aspx>

Intervention development





Involving People in Behaviour Change Intervention Research



The Person-Based Approach For Developing Health Interventions

The internationally recognised Person-Based Approach (PBA) is a set of methods and tools for developing effective interventions that people will find easy to use and engaging. It describes methods for planning, optimising, evaluating and implementing behavioural health interventions that can successfully engage diverse users and support better health-related outcomes.

The PBA offers practical methods of carrying out many of the key intervention development activities recommended by the new MRC and INDEX guidance for developing interventions, such as identifying stakeholders, understanding context, and developing a programme theory.

What is the Person-Based Approach (PBA)?

The PBA combines stakeholder and PPI co-production with in-depth qualitative and mixed methods research with a diverse range of people. Using the PBA will enable you to:

THE PERSON BASED APPROACH

<https://personbasedapproach.org/>

Co-production and the Person-based approach

- ▶ sharing of power – the research is jointly owned and people work together to achieve a joint understanding
- ▶ including all perspectives and skills – make sure the research team includes all those who can make a contribution
- ▶ respecting and valuing the knowledge of all those working together on the research – everyone is of equal importance
- ▶ reciprocity – everybody benefits from working together
- ▶ building and maintaining relationships – an emphasis on relationships is key to sharing power

[NIHR Guidance on co-producing a research project](#)

HOW THE PBA ENHANCES PPI

Deepens User Insight

PBA uses **iterative qualitative research** (e.g., interviews, think-aloud studies) to understand how people interact with interventions.

This goes beyond consultation—capturing nuanced barriers, motivations, and preferences that might be missed in traditional PPI.

HOW THE PBA ENHANCES PPI

Creates Guiding Principles

These are design objectives derived from user data that guide the development of interventions.

They ensure that interventions are **tailored to real-world contexts**, aligning with the goals of meaningful PPI.

HOW THE PBA ENHANCES PPI

Promotes Co-Design

PBA encourages **user-centered design**, where interventions are shaped by and for the people who will use them.

This aligns with PPI's emphasis on **co-production** and shared decision-making.

HOW THE PBA ENHANCES PPI

Improves Acceptability and Engagement

By focusing on what makes an intervention **usable and engaging**, PBA helps ensure that PPI leads to **practical outcomes**—not just theoretical involvement.

HOW PBA ENHANCES PPI

Supports Inclusive Research

PBA is particularly valuable in **diverse or underserved communities**, where standard approaches may not capture lived realities.

It helps researchers **adapt interventions** to cultural, social, and psychological contexts, reinforcing inclusive PPI.



Design choices in intervention research

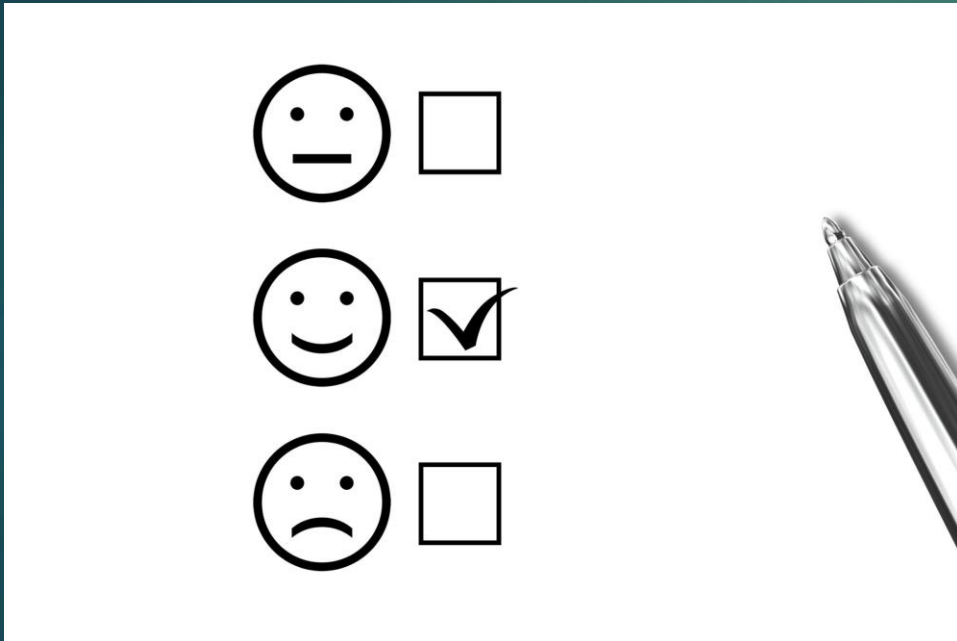
Design Choices in Behaviour Change

- ▶ Grounded in theory (e.g., COM-B, TDF)
- ▶ Identify target behaviour
- ▶ Specify behaviour change techniques (BCTs)
- ▶ Consider context & population

Intervention Development

- ▶ Behavioural diagnosis
- ▶ Mechanisms of action
- ▶ Delivery mode & format
- ▶ Intensity, duration, tailoring

Key Principles for Designing Interventions



Precise Target Behaviour

Identifying specific behaviours ensures strategies are measurable and actionable for effective change.

Selecting Behaviour Change Techniques

Choosing suitable techniques like feedback, goal setting, and cues aligns with identified behavioural mechanisms.

Delivery Mode and Tailoring

Interventions can be face-to-face, digital, or hybrid, tailored to participant needs and context.

Ethics and Sustainability

Ethical considerations and appropriate intervention duration support lasting and responsible behaviour change.

Primary Outcome Measures: Definition and Examples

Definition of Primary Outcomes

Primary outcomes are central indicators assessing if interventions meet their behaviour change goals.

Examples of Primary Measures

Examples include steps per day for physical activity and abstinence rates for smoking cessation.

Criteria for Effective Outcomes

Outcomes must be clearly defined, sensitive to change, and aligned with theoretical frameworks.

Importance of Outcome Selection

Proper outcome selection is critical to valid conclusions and guiding future research or policies.



Secondary Outcome Measures: Role and Applications



Complementing Primary Outcomes

Secondary outcomes provide insights into underlying mechanisms beyond primary intervention targets.

Identifying Unintended Consequences

Secondary measures can reveal unintended effects like stress or improved quality of life.

Importance of Methodological Rigor

Collecting secondary data requires careful planning to reduce participant burden while ensuring accuracy.

Evaluation and Theory Development

Secondary outcomes enrich theory and practical application of behaviour change interventions.

Choosing appropriate measures

- ▶ Use validated scales
- ▶ Appropriate for target population
- ▶ Strong psychometric properties
- ▶ Other data?
 - ▶ Physiological measures?
 - ▶ Behaviours
 - ▶ Demographics

When? How often?

- ▶ Interventions require pre and post measures in order to show change
- ▶ Often require a control group
- ▶ Short-term versus long-term follow-up?



Best Practices for Evaluation and Measurement

Planning Evaluation Early

Design evaluation strategies during intervention planning to align measures with goals and frameworks.

Measurement Reliability

Use standardised, reliable, and valid tools to reduce bias and improve study comparability.

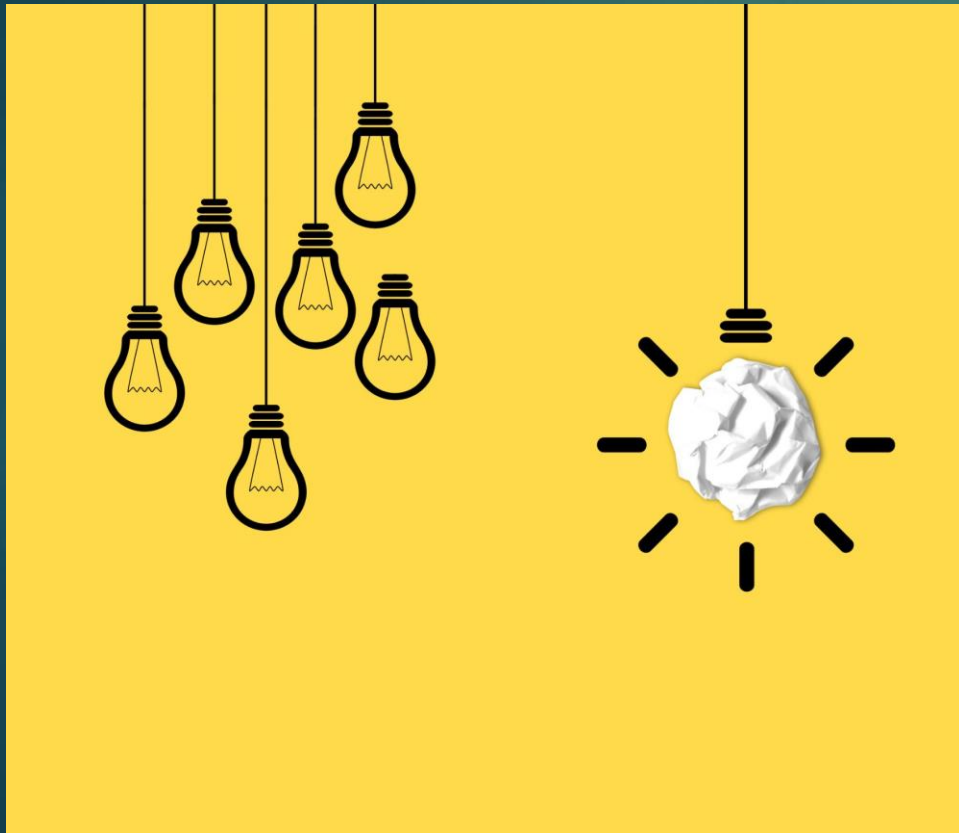
Process Evaluation

Assess delivery fidelity, participant engagement, and contextual factors influencing outcomes.

Ethical and Long-Term Considerations

Uphold ethics rigorously and conduct long-term follow-ups to ensure sustainability of behaviour change.

Integrating Design and Evaluation for Impact



Interdependent Design & Outcomes

Design choices and outcome measures work together to determine behaviour change success and evidence impact.

Theory-Based Intervention Design

Effective designs rely on theory, behaviour change techniques, and delivery considerations like mode and tailoring.

Planned Rigorous Evaluation

Evaluation uses reliable tools and process measures from the start to ensure fidelity and measure outcomes.

Impactful Practice for MSc Students

Mastering design and evaluation equips students to create scalable, sustainable interventions improving health and knowledge.

The APEASE criteria for designing and evaluating interventions

Themes: APEASE criteria	Codes
1. Affordability	Influence of cost to patients
2. Practicability	Efficiency of referral procedure
	Efficiency and effectiveness of ongoing communication
	Fitting in with existing initiatives
3. Effectiveness	Is there a need?
	Will it improve outcomes?
4. Acceptability	Trust
	Personal relationships
	The burden of care on GPs
5. Safety/side effects	Worsening of outcomes
6. Equity	Patient diversity

Using APPEASE in Intervention Design

- ▶ Guides selection of intervention components
- ▶ Ensures feasibility before implementation
- ▶ Helps anticipate barriers & unintended consequences
- ▶ Supports decision making among alternative components



Ethical considerations in behaviour change research

Key ethical considerations in intervention research

- ▶ Written **informed** consent – at appropriate levels
- ▶ Clarity and comprehension of research materials
 - ▶ Appropriate for target audience?
- ▶ No potential coercion
- ▶ Right to withdraw
- ▶ Debriefing
- ▶ Potential for harm/discomfort/distress
- ▶ Confidentiality/Data Protection

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