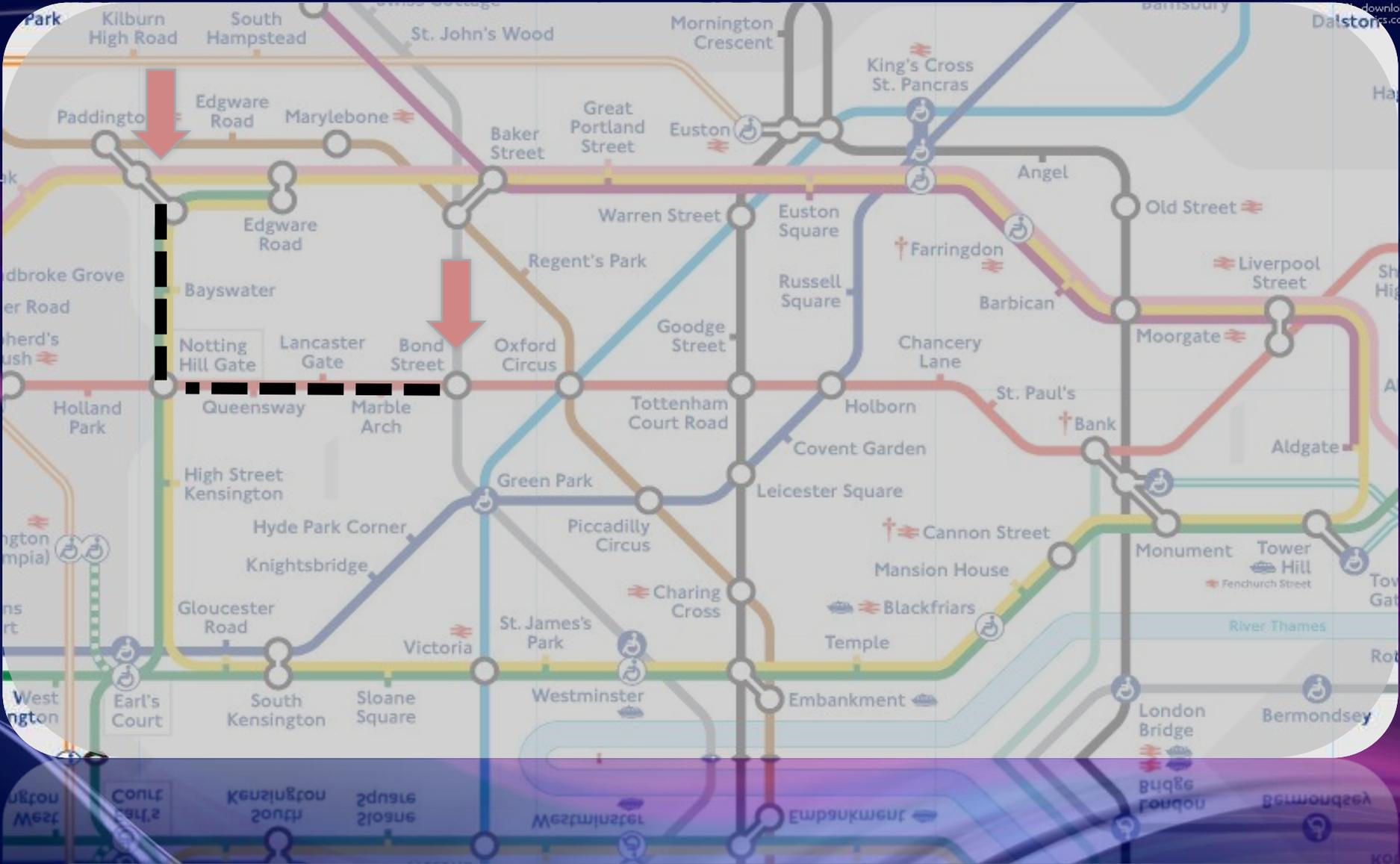


Q: How would you get from Paddington to Bond Street?



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Zhan Guo
Associate Professor of Urban Planning
and Transportation Policy (NYU)



“Congestion stems from how transport authorities draw maps of their systems”

Passengers often trust maps more than their travel experience

Maps are more than two times as influential – even for experienced travel users

Distortion can make some station stops seem more ‘convenient’ leading to long wait times and congestion

E.g. Covent garden

- Paddington to Bond Street via Notting Hill Gate = 15% slower
- Most passengers chose via Baker Street as route looks shorter

Here's how it really looks – almost tempted to walk?



Designing behaviour change interventions: Demystifying theory

Dr. Caroline Wood
UCL Centre for Behaviour Change



Mon - Sat
8 am - 6.30 pm

No loading
Mon - Sat
8 am - 9.30 am
5 pm - 6.30 pm



Mon - Sat
9.30 am - 5 pm

Pay at machine
2 hours

No return
within 2 hours



We know we can't all
build (or fly!) planes
or perform open
heart surgery...

We recognise these
tasks require expert
knowledge and skills



We all behave and see others behave...

...and have our own theories about how to change our own / others behaviour...

...but they can be wrong!



There is a science of behaviour change but it is not always applied...

Intervention

With whom do they need to do it?

Who needs to do what differently to achieve the desired change?

When do they need to do it?

Where do they need to do it?

How often do they need to do it?

In what context do they need to do it?

Why do they need to do it this way?

Theories and models



What is theory?

“A set of concepts and/or statements which specify how **phenomena relate** to each other.

Theory provides an **organising description** of a system that accounts for what is known, and **explains and predicts** phenomena.”

Multidisciplinary
consensus
definition

Traditional approaches to intervention design

The “I.S.L.A.G.I.A.T.T” Principle (Eccles, 2012)

‘It seemed like a good idea at the time’

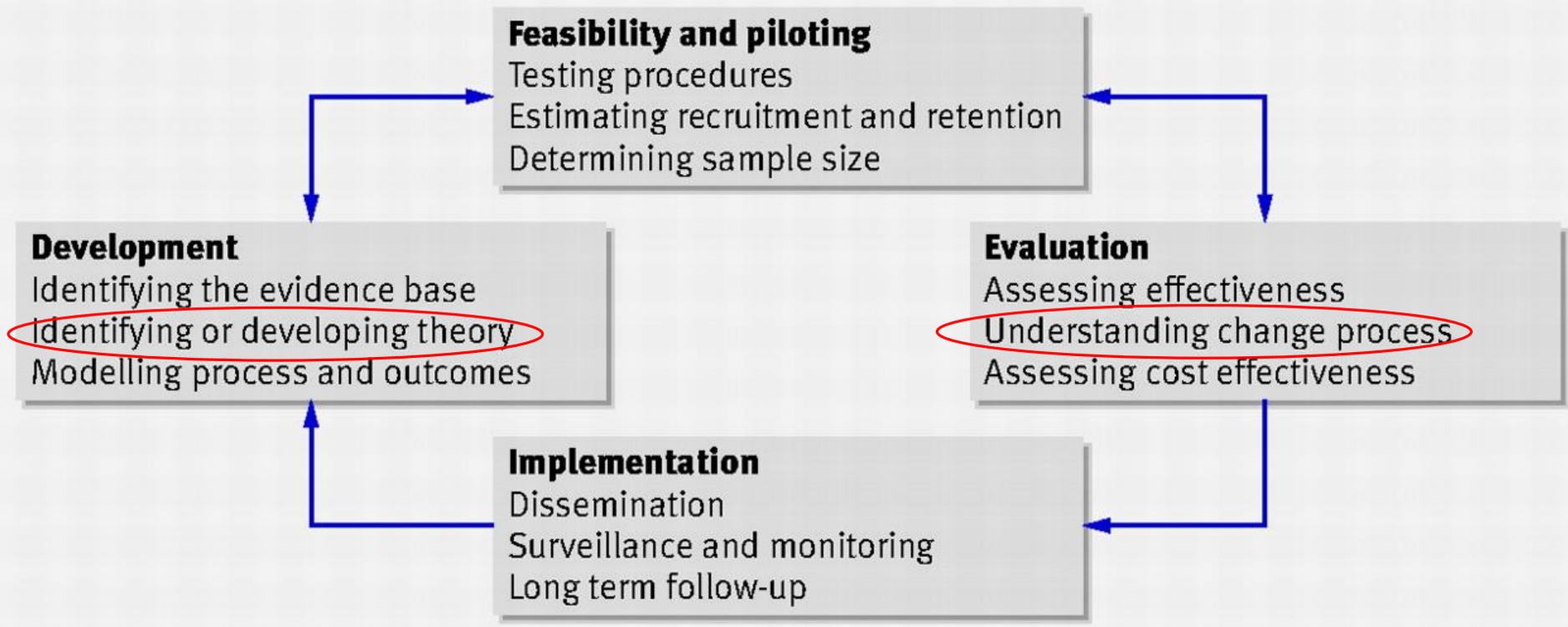


So - why use theory?

- Informed by theory hypothesised to be more effective than non-theory based interventions
- Provides a framework to facilitate...
 - Accumulation of evidence
 - Communication across research groups
- Identifies barriers and facilitators to change
- Identifies mechanisms of action...
 - Evidence that can be used to:
 - Understand processes
 - Design and improve interventions

MRC Guidance for developing and evaluating interventions

Craig et al. 2009 *BMJ*





How are we doing?

Theory informed or theory inspired?

Travel behaviour (active travel): Review of 15 interventions

- Limited evidence of theory being used

Arnott et al. 2014

Travel behaviour (car use): Review of 77 interventions

- 62% used weak designs without control groups
- 12 methodologically strong but difficult to draw conclusions

Graham-Rowe et al. 2011

Health behaviour change: Review of 193 interventions

- Only 1/3 mentioned theory. Of these...
 - 18% reported applying theory
 - 3.6% testing theory
 - 9.4% building theory

Painter et al. 2008

If theory is used...

❑ Common theories / models

Social cognition:

- Theory of planned behaviour (Ajzen, 1991)
- Stages of change (Prochaska & DiClemente, 1983)
- Habit theory (Aarts et al. 1998)

Using the most appropriate theory?

❑ Poorly applied and/or tested:

- Only a few constructs targeted
- Constructs not targeted adequately
- Theory not tailored appropriately

If we don't use more rigorous methods...



- **Synthesis of evidence will be slow**
- **Becomes difficult to evaluate increasingly complex interventions**
 - **Most effective ingredients?**
 - **Combination of ingredients?**
- **Bias in findings could exist**
 - **Controlled vs. uncontrolled testing**
- **Prevented from sharing evidence with others / replicating**



- Becomes difficult to evaluate increasingly complex interventions
 - Most effective ingredients?
 - Combination of ingredients?

Some evidence suggests provision of information (e.g. instruction, information about consequences) + behavioural regulation techniques (e.g. action planning, goal setting) BUT limited data and muddy methods

(Arnott et al. 2014)

- Bias in findings could exist
 - Controlled vs. uncontrolled testing

Evidence suggesting personalised travel advice + information + incentives successful at reducing single car use by 21% BUT smaller effects of 3% in controlled study

(Anable et al. 2004)



How can we improve?

Examples of guidance available:

- DfT Toolkit (2011)
- Behavioural Insights Team EAST
- 'Four Dimensions of Behaviour' (FDB) Framework (2013)
- MINDSPACE (2010)
- Science and Technology Select Committee on Behaviour Change – UK Parliament

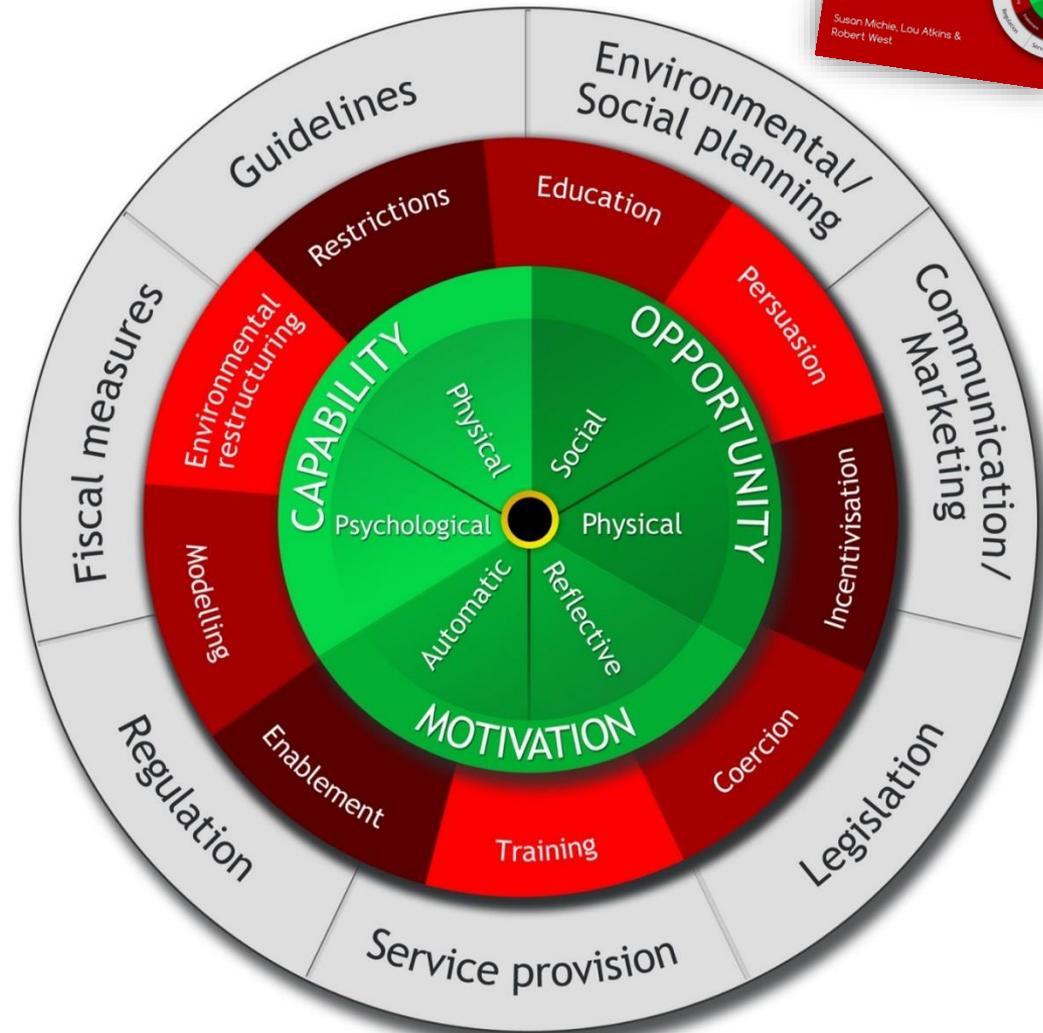
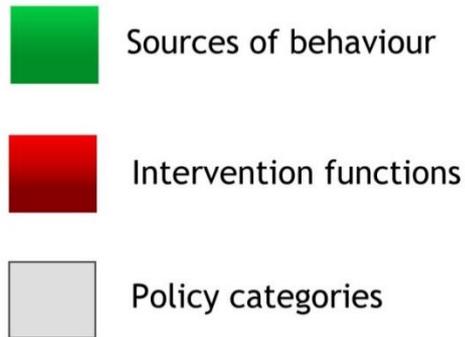
- **ABC of Behaviour Change theories (2014)**
 - 83 theories from Sociology, Psychology, Anthropology and Economics



Use an integrative theoretical framework

1. Use a **framework that integrates** wide range of theories

The Behaviour Change Wheel



Need a framework that is:

- Comprehensive
- Coherent
- Linked to a model of behaviour

Systematic review of 19 frameworks...

- None met all three criteria
- BCW developed

Use an integrative theoretical framework

1. Use a framework that integrates wide range of theories
2. Start by understanding target **behaviour in context**
3. **Analyse** what needs to shift in order for target behaviour to happen
4. Design the intervention **based on the diagnosis**

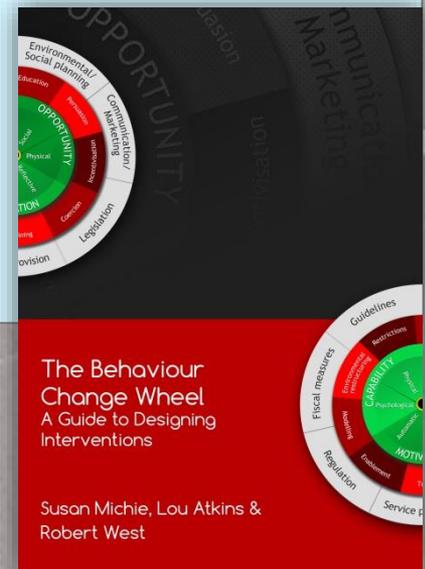


Myth #1

But we already have an intervention – it's too late to use theory!

Use the Behaviour Change Wheel to ...

1. **Design** interventions and policies
 - COM-B links to intervention functions link to techniques
2. “Retrofit” – **identify** what is in current interventions and policies
3. Provide a framework for **evaluation**
 - How are interventions working?
4. Structure **systematic reviews** of evidence



Case study: Arnott et al. 2014

Review to evaluate effectiveness of controlled BC interventions aiming to reduce car use

- 13 unique studies involving 4895 participants
- All were behavioural only interventions
- Studies coded using BCW supplemented by BIT toolkit

Results

- Most studies addressed *Enablement, Education or Incentivisation*
- None addressed Training, Modelling or Restriction

Most of these studies **assumed** that people already knew **HOW** to perform the behaviour – was this really the case?



Case study: Yeo et al. 2015

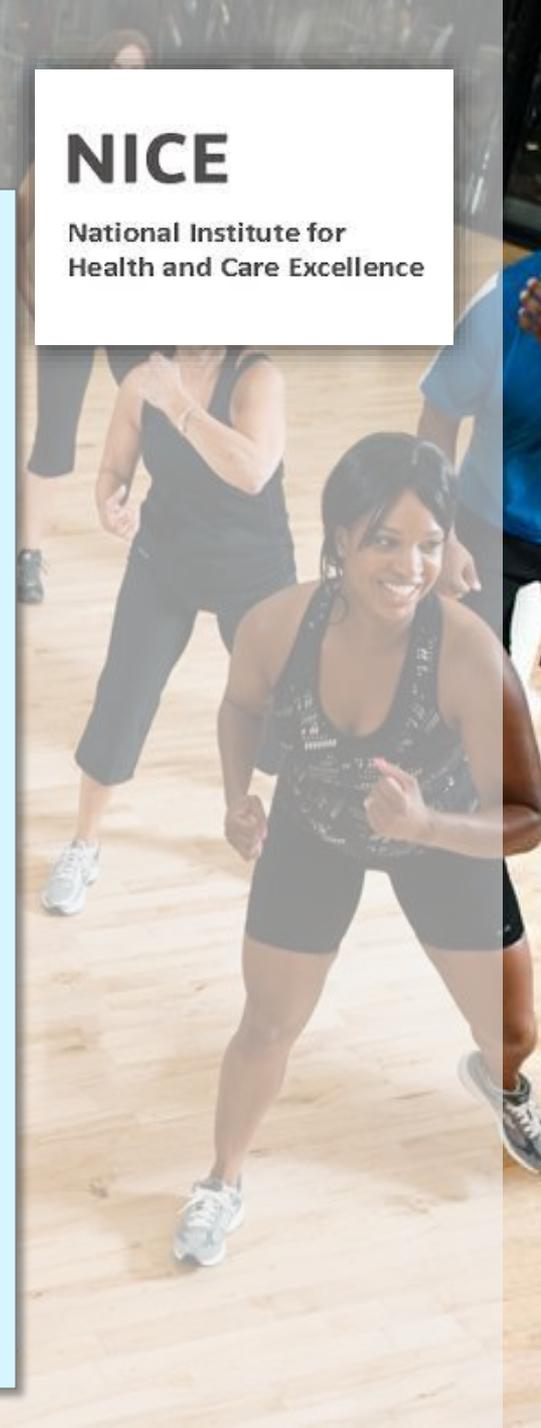
Review to evaluate NICE's obesity guidance and its coverage of interventions and policies

- NICE guidance on obesity
- 78 recommendations from 10 different guidelines
- Coded using BCW
- Interviews with 10 experts to understand why certain intervention functions being recommended and not others

Results

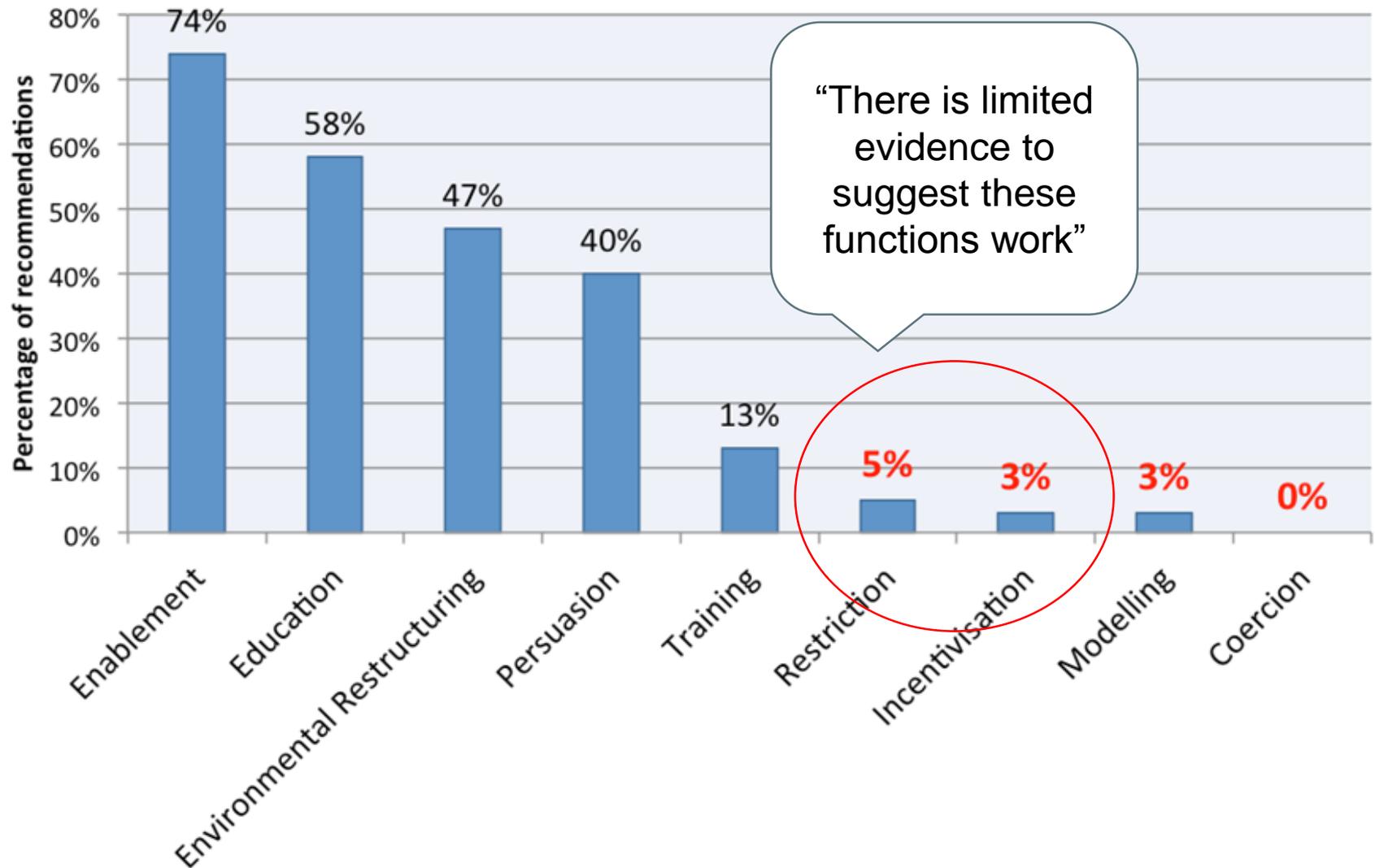
NICE

National Institute for
Health and Care Excellence



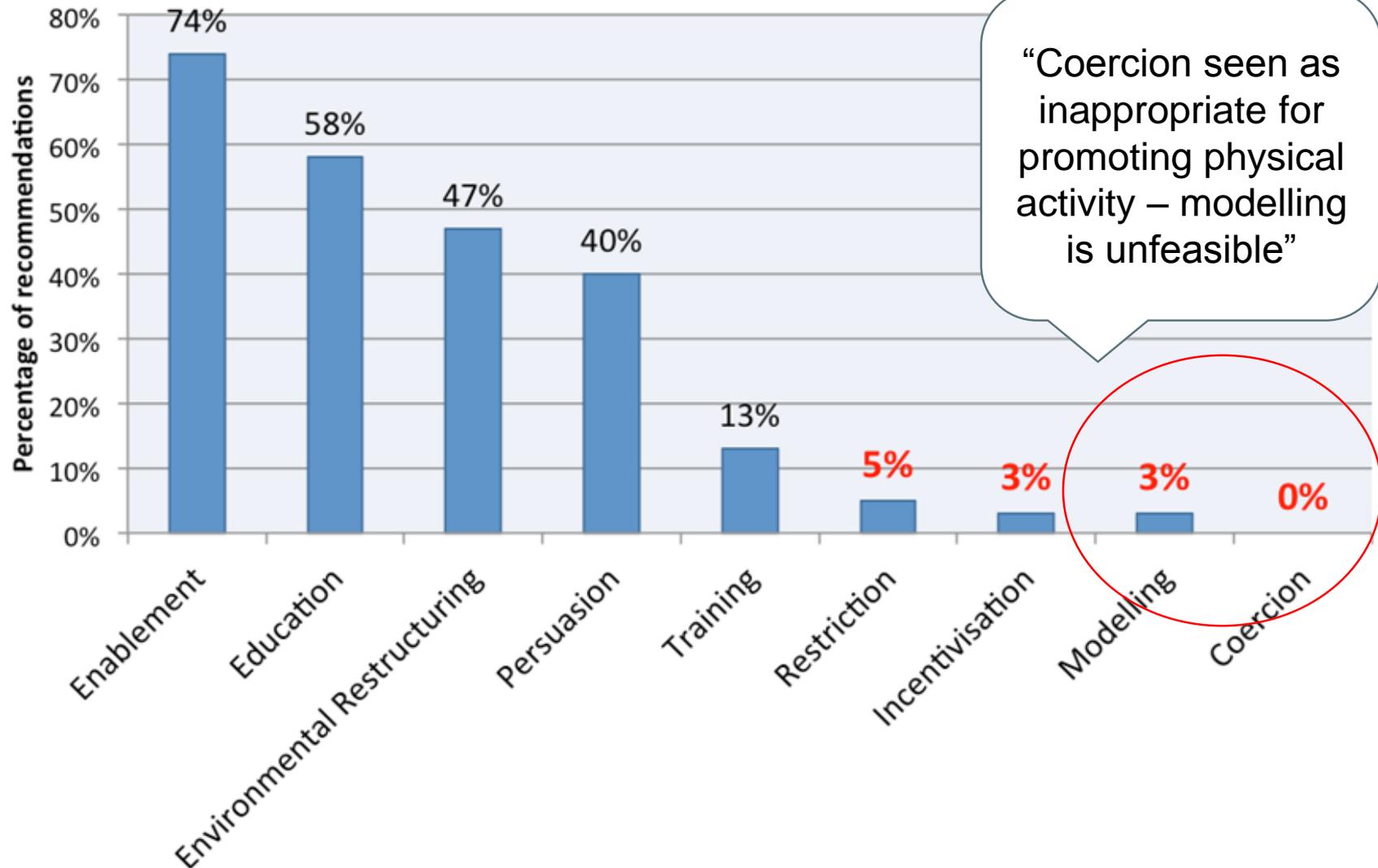
Case study: Yeo et al. 2015

Recommendations for physical activity



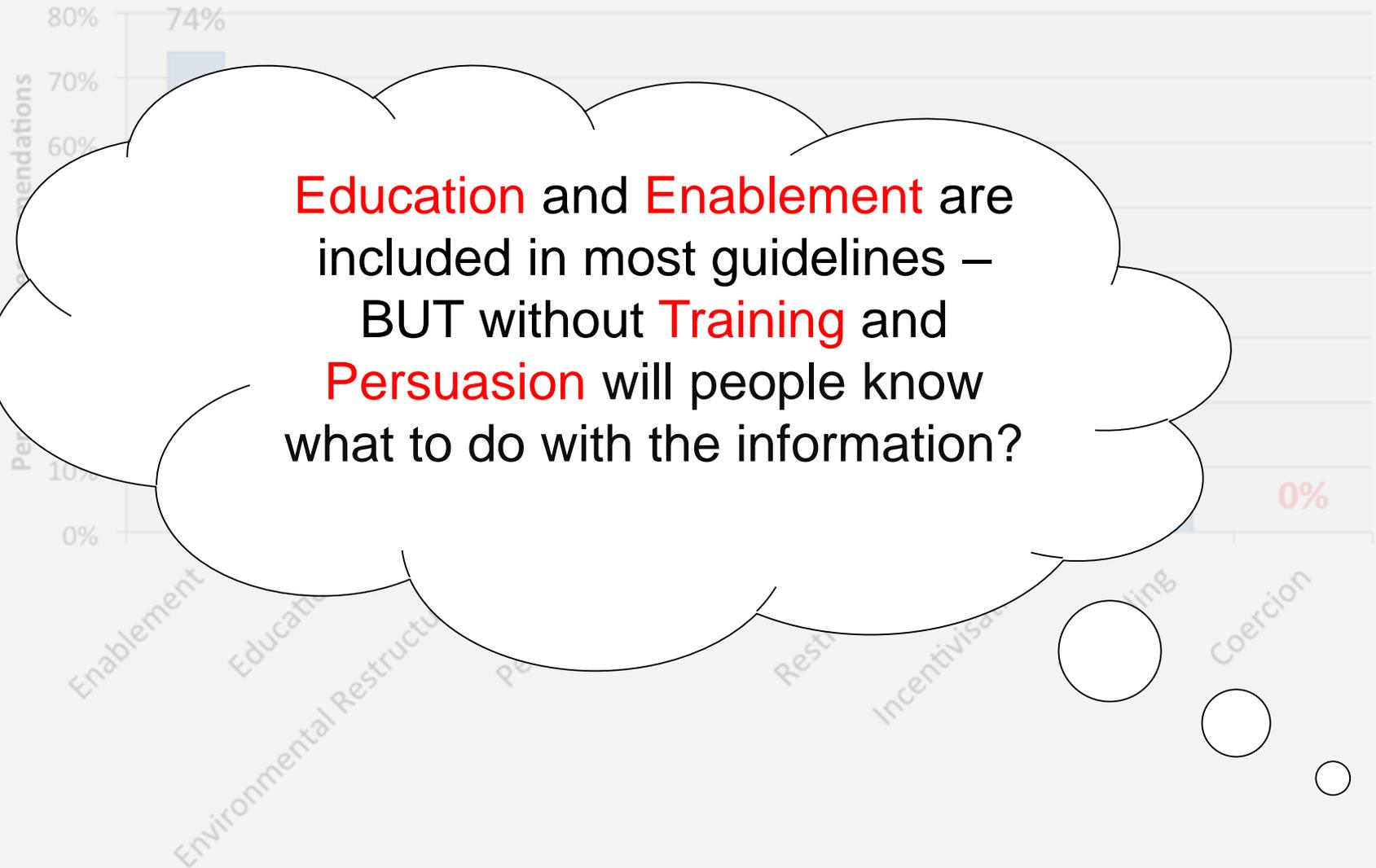
Case study: Yeo et al. 2015

Recommendations for physical activity



Case study: Yeo et al. 2015

Recommendations for physical activity



Previous intervention:

Shouting out.

Effect = Little movement

Our own little 'nudge' today:

A well-behaved audience!



CAUTION
WET
PAINT

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“Typical!”



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**UCL Centre for
Behaviour Change**
[www.ucl.ac.uk/behaviour
-change](http://www.ucl.ac.uk/behaviour-change)



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