Behaviour Change beyond Nudge

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This talk

• What is Nudge?
• What is behaviour change?
• Effectiveness and acceptability of interventions
• Government policy
What is Nudge?

• A book:

• A ‘brand’: an approach to the design of behaviour change interventions
  – Focuses on ‘choice’ but recognises the importance of ‘non-rational’, automatic processes in making that choice
  – excludes legislation, regulation and economic incentives
• Builds on psychological and sociological theory dating back over a century that shows how environments shape and constrain human behaviour
  – often far more than we like to believe

• Recognises that our everyday decisions and behaviour are often not conscious and “rational”
  – may be less influenced by informed, reflective thinking about what is good for us
  – than by automatic and habitual processes
The Context

- The Nudge ‘brand’ was created in the USA, where government intervention beyond ‘education’ is considered to be state interference.
- A step forward in that it is based on the principle that:
  - it is legitimate to influence people’s behaviour to make their lives healthier (paternalism), but
  - such influence should be unobtrusive and not entail compulsion (libertarian).
However …

- What is ‘in’ and ‘out’ of Nudge
- Why?
- Does it matter?

- First, something about behaviour change ….
How does Nudge fit into behaviour change interventions?

• In many areas of life, faced with the challenges of helping people to change their behaviour in ways which are unrewarding in the short-term

• Traditional approaches have had limited impact
  – providing information,
  – advising people to change and
  – creating fear

• What does psychology, the science of behaviour, bring to the table?
Behaviour change is complex

- House of Lords 2011 Enquiry into Behaviour Change
  - Wanted simple answer to simple question: “What works?”
    - Not impressed by
- “It depends” on ....
  - The target
    - Type of behaviour, type of change
  - The population
    - Individual, group, community, population
  - The setting
    - Home, work, leisure
  - Type of intervention
    - Content, mode of delivery
Interventions are complex

• Several, potentially interacting, techniques
• Vary in
  – content or elements of the intervention
  – delivery of the intervention
    • the mode of delivery (e.g., face-to-face)
    • the intensity (e.g., contact time)
    • the duration (e.g., number sessions over a given period)
    • characteristics of those delivering the intervention
    • characteristics of the recipients,
    • characteristics of the setting (e.g., worksite)
  – adherence to delivery protocols

Effective interventions….

- Intervene at many levels
- simultaneously & consistently

NICE Guidance for Behaviour change at population, community and individual levels (2007; 2014)

Obesity and the Economics of Prevention, OECD (2010)

Source: Dahlgren and Whitehead, 1991
A starting point for understanding and changing behaviour ...

• Why do people
  – behave in ways that damage themselves and others?
  – not behave in ways that would improve the lot of themselves and others?

• Consider
  – the full range of possible interventions that would be appropriate
  – given a behavioural analysis of the problem in its context
Understand the behaviour in context

- Why are behaviours as they are?
- What needs to change for the desired behaviour/s to occur?

- Answering this is helped by a model of behaviour
  - COM-B
  - Behaviour is part of a system and itself is a system
A thought experiment

For behaviour to change, what three conditions need to exist?
The COM-B model: Behaviour occurs as an interaction between ...

- **Capability**: Psychological or physical ability to enact the behaviour
- **Motivation**: Reflective and automatic mechanisms that activate or inhibit behaviour
- **Opportunity**: Physical and social environment that enables the behaviour

See Michie et al (2011) *Implementation Science*
Reflective and automatic mechanisms: “A dual process model” of human behaviour

- A **reflective**, goal-oriented system driven by our knowledge, values and intentions
  - Engaged by traditional health promotion
    - alter beliefs and attitudes, motivate people with the prospect of future benefits, or help them develop self-regulatory skills

- An **automatic**, affective system driven by feelings, habits, triggers in our environments
  - Rapid, requires little or no cognitive engagement
    - Alter habits, emotional responses, response to “choice architecture” e.g. default options, information about others’ behaviour, cues outside awareness
Effective principles of behaviour change

- **Maximise** to regulate own behaviour
  - Develop relevant skills (e.g. goal setting, monitoring, feedback)
  - Develop specific plans to change

- **Increase** to engage in the desired behaviour
  - Reward change
  - Develop appropriate beliefs
    - E.g. benefits of changing, others’ approval, personal relevance, confidence to change
  - Develop positive feelings about changing

- **Reduce** to continue with the undesired behaviour

- **Maximise** to support self-regulation
  - Elicit social support
  - Avoid social and other cues for current behaviour
  - Change routines and environment

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NICE Guidance for Behaviour change (2014)
A starting point for understanding and changing behaviour ...

• Why do people
  – behave in ways that damage themselves and others?
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• Consider
  – the full range of possible interventions that would be appropriate
  – given the behavioural analysis of the problem in its context
Intervening: Consider full range of options

• Frameworks make life easier
• Need a framework that is
  – Comprehensive
    • So don’t miss options that might be effective
  – Coherent
    • So can have a systematic method for intervention design
  – Linked to a model of behaviour
    • So can draw on behavioural science

Useable by, and useful to, policy makers, service planners and intervention designers
Do we have such a framework?

- Systematic literature review identified 19 frameworks of behaviour change interventions
  - related to health, environment, culture change, social marketing etc. E.g Mindspace, Intervention Mapping
- None met all these three criteria
- So .... Developed a synthesis of the 19 frameworks


www.behaviourchangewheel.com
Behaviour at the hub .... COM-B

Sources of behaviour

Intervention functions

Policy categories

CAPABILITY
Psychological
Automatic
Social
Reflective
Physical

OPPORTUNITY
Physical

MOTIVATION
Consider the full range of interventions: The Behaviour Change Wheel

• COM-B model of behaviour at the hub of a wheel
• Around this, 9 intervention functions
  – each include one or more specific behaviour change techniques
• Around this, 7 policy categories
  – that could enable or support these interventions to occur

COM-B model
Interventions: activities designed to change behaviours

Sources of behaviour:
Intervention functions:
Intervention functions

- Use rules to reduce the opportunity to engage in the behaviour
- Increase knowledge or understanding
- Use communication to induce positive or negative feelings to stimulate action
- Change the physical or social context
- Provide an example for people to aspire to or emulate
- Create an expectation of reward
- Create an expectation of punishment or cost
- Increase means or reduce barriers to increase capability (beyond education or training) or opportunity (beyond environmental restructuring)
- Impart skills
- Change the physical or social context
- Educational interventions
  - Restricting
  - Incentivising
  - Persuasion
- Motivational strategies
  - Psychological
  - Social
  - Automatic
  - Reflective
- Capability development
  - Modelling
  - Enablement
- Opportunity enhancement
  - Training
  - Coercion
Policies: decisions made by authorities concerning interventions.
Making or changing laws

Creating documents that recommend or mandate practice. This includes all changes to service provision

Using the tax system to reduce or increase the financial cost

Establishing rules or principles of behaviour or practice

Delivering a service

Designing and/or controlling the physical or social environment

Using print, electronic, telephonic or broadcast media

Making or changing laws
Use this framework to …

1. **Design** interventions and policies
   - COM-B links to intervention functions link to BCTs

2. “Retrofit” – **identify** what is in current interventions and policies

3. Provide a framework for **evaluation**
   - How are interventions working?

4. **Structure** systematic reviews

[www.behaviourchangewheel.com](http://www.behaviourchangewheel.com)
Designing interventions

• Given intervention functions and policies, which behaviour change techniques (BCTs) to select?
• There are many and varied BCTs
• What is a BCT?
  – “Active ingredients” within the intervention designed to change behaviour
An early reliable taxonomy to change frequently used behaviours

1. General information
2. Information on consequences
3. Information about approval
4. Prompt intention formation
5. Specific goal setting
6. Graded tasks
7. Barrier identification
8. Behavioural contract
9. Review goals
10. Provide instruction
11. Model/demonstrate
12. Prompt practice
13. Prompt monitoring
14. Provide feedback
15. General encouragement
16. Contingent rewards
17. Teach to use cues
18. Follow up prompts
19. Social comparison
20. Social support/change
21. Role model
22. Prompt self-talk
23. Relapse prevention
24. Stress management
25. Motivational interviewing
26. Time management

The person is asked to keep a record of specified behaviour/s. This could e.g. take the form of a diary or completing a questionnaire about their behaviour.

Involves detailed planning of what the person will do including, at least, a very specific definition of the behaviour e.g., frequency (such as how many times a day/week), intensity (e.g., speed) or duration (e.g., for how long for). In addition, at least one of the following contexts i.e., where, when, how or with whom must be specified. This could include identification of sub-goals or preparatory behaviours and/or specific contexts in which the behaviour will be performed.

Abraham & Michie, 2008, Health Psychology
“Taxonomies” of BCTs

- Physical activity/healthy eating/mixed: 26 BCTs
  Abraham & Michie, 2008

- Physical activity & healthy eating: 40 BCTs
  Michie et al, Psychology & Health, 2011

- Smoking cessation: 53 BCTs
  Michie et al, Annals behavioural Medicine, 2010

- Reducing excessive alcohol use: 42 BCTs
  Michie et al, Addiction, 2012

- Condom use: 47 BCTs
  Abraham et al, 2012

- General behaviour change: 137 BCTs

- Competence framework: 89 BCTs
  Dixon & Johnston, 2011

93 item BCT Taxonomy v1, Annals of Behavioral Medicine, 2013
The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions

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Abstract

Background CONSORT guidelines for reporting of behavior change interventions rely on various methods of characterizing interventions with a lack of consensus on how to standardize this information. Agreement amongst six researchers on detailed textual descriptions by BCTs was obtained. This resulted in 93 BCTs clustered into 16 groups. Of the 26 BCTs occurring at least five times, 23 had adjusted kappas of 0.60 or above.

Conclusions “BCT taxonomy v1,” an extensive taxonomy of 93 consensually agreed, distinct BCTs, offers a step change as a method for specifying interventions, but we anticipate further development and evaluation based on international, interdisciplinary consensus.

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BCT Taxonomy v1

- Applies to an extensive range of behaviour change interventions
- Agreed by an international consensus to be potential active components of interventions
  - 400 participants from 12 countries
- Clearly labelled, well defined, distinct, precise; can be used with confidence by a range of disciplines and countries
- Hierarchically organised to improve ease of use  
  
  Cane et al, *BJHP*, 2014
BCT Taxonomy v1: 93 items in 16 groupings

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<tr>
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<th>Grouping and BCTs</th>
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<th>Grouping and BCTs</th>
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<td>1. Goals and planning</td>
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<td>6. Comparison of behaviour</td>
<td>16</td>
<td>12. Antecedents</td>
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<td></td>
<td>1.1. Goal setting (behavior)</td>
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<td>6.1. Demonstration of the behavior</td>
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<td>12.1. Restructuring the physical environment</td>
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<td>1.2. Problem solving</td>
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<td>6.2. Social comparison</td>
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<td>12.2. Restructuring the social environment</td>
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<td>1.3. Goal setting (outcome)</td>
<td></td>
<td>6.3. Information about others’ approval</td>
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<td>12.3. Avoidance/reducing exposure to cues for the behavior</td>
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<td>1.4. Action planning</td>
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<td>12.4. Distraction</td>
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<td>1.5. Review behavior goal(s)</td>
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<td>12.5. Adding objects to the physical environment</td>
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<td>1.6. Discrepancy between current behavior and goal</td>
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<td></td>
<td>1.7. Review outcome goal(s)</td>
<td>9</td>
<td>7. Associations</td>
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<td>7.1. Prompts/cues</td>
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<td>16</td>
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<tr>
<th>No.</th>
<th>Label</th>
<th>Definition</th>
<th>Examples</th>
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<tbody>
<tr>
<td>1.1</td>
<td>Goal setting (behavior)</td>
<td>Set or agree on a goal defined in terms of the behavior to be achieved. Note: only code goal-setting if there is sufficient evidence that goal set as part of intervention; if goal unspecified or a behavioral outcome, code 1.3, Goal setting (outcome); if the goal defines a specific context, frequency, duration or intensity for the behavior, also code 1.4, Action planning</td>
<td>Agree on a daily walking goal (e.g. 3 miles) with the person and reach agreement about the goal</td>
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<td>Set the goal of eating 5 pieces of fruit per day as specified in public health guidelines</td>
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The BCTTv1 smartphone app

- Fully searchable version of BCTTv1
- Search by BCT label, BCT grouping or alphabetically
- Increases familiarity with the taxonomy
- Increases speed and recall of BCT labels and definitions

Search for: BCTs
Search for: BCTs*

bcts.23.co.uk*

* You’ll need an internet connection to use the app
Which behaviour change techniques to select?
## The APEASE criteria

<table>
<thead>
<tr>
<th><strong>Affordability</strong></th>
<th>Can it be delivered to budget?</th>
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<td><strong>Practicability</strong></td>
<td>Can it be delivered as designed?</td>
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<tr>
<td><strong>Effectiveness/ cost-effectiveness</strong></td>
<td>Does it work (ratio of effect to cost)?</td>
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<td><strong>Acceptability</strong></td>
<td>Is it judged appropriate by relevant stakeholders (publicly, professionally, politically)?</td>
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<tr>
<td><strong>Side-effects/ safety</strong></td>
<td>Does it have any unwanted side-effects or unintended consequences?</td>
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<tr>
<td><strong>Equity</strong></td>
<td>Will it reduce or increase the disparities in health/wellbeing/standard of living?</td>
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Back to Nudge …

• Which intervention functions and policy categories are included?
• Which are not?
• Does the exclusion of some matter?
Where does Nudge fit in?

- **Sources of behaviour**
- **Intervention functions**
- **Policy categories**

Nudge
Evidence of effectiveness: the example of stop smoking interventions

- The evidence:
  - 14 BCTs found to be effective in Cochrane reviews of evidence
  - 9 associated with higher success rates in the English Stop Smoking Services (one month quit data)

Smoking: evidence based techniques and policies

Sources of behaviour

Advise on stop-smoking medication

Smoking ban

Facilitate relapse prevention and coping

Under the counter

Advise on changing routine

Seek commitment
Intervention functions

Under the counter

Smoking ban

Facilitate relapse prevention and coping

Advise on stop-smoking medication

Advise on changing routine

Seek commitment

Service provision

Guidelines

Environmental restructuring

Enablement

Enforcement

Restrictions

Education

Persuasion

Coercion

Incentivisation

Fiscal measures

Communication/Marketing

MOTIVATION

Physical

Social

Psychological

Automatic

Reflective

Training

Advise on changing routine

Advise on stop-smoking medication

Facilitate relapse prevention and coping

Seek commitment

Under the counter

Smoking ban
Do Nudges work? In some situations ...

- Tobacco, drink and food industries, and supermarkets have spent enormous sums on research into sophisticated methods of influence:
  - advertising,
  - product placement,
  - packaging,
  - lining check-out queues with sweets at children’s eye level.
Public health

BMJ, 2011

Judging nudging: can nudging improve population health?

Nudging has captured the imagination of the public, researchers, and policy makers as a way of changing behaviour, with the UK and US governments embracing it. Theresa Marteau and colleagues ask whether it stands up to scientific scrutiny.

- Examples of effective interventions ....
- Putting yellow duct tape across the width of supermarket trolleys with a sign requesting shoppers to place fruit and vegetables in front of the line doubled fruit and vegetable purchasing
- Placing fruit by the cash register increased the amount of fruit bought by school children at lunchtime by 70%
However …

- Effective nudging may require legislation
  - to implement healthy nudges
    - such as displaying fruit at checkouts
  - or to prevent unhealthy nudges from industry
    - such as food advertising aimed at children

- Daily salt consumption reduced by
  - 0.9g per person in the UK after agreements with industry, reinforced by threat of legislation
  - 5g per person in Finland and Japan after legislation
One nudge forward, two steps back
Why nudging might make for muddled public health and wasted resources

- “The notion of nudging adds nothing to existing approaches. Public health policies should be based on the best available evidence, but the government has shown a worrying tendency to undermine the collection of such evidence. Little progress will be made if public health policy is made largely on the basis of ideology and ill-defined notions that fail to deal with the range of barriers to healthy living.”

BMJ, 2011
what is the evidence for effective interventions to change behaviour?

• to what extent is Government policy evidence-based?

• Evidence from 148 written submissions & 70 witnesses
  – experts in behaviour change, representatives from funders, industry, charities, Government

• 32 recommendations
Re. Nudge

- Chair, Baroness Neuberger, reported finding “precious little” evidence for effective impact of Nudge:
  - “You need more than just Nudge ... Behavioural change interventions appear to work best when they're part of a package of regulation and fiscal measures ..."

- Committee recommended that Government should consider the range of interventions
  - regulatory and non-regulatory
Behaviour Change beyond Nudge

- What works: intervening at many levels, and beyond Nudge e.g.
  - Restrictions: to access (e.g. smoke-free)
  - Coercion: Increased pricing (e.g. alcohol)
  - Mass media campaigns
  - Individual support e.g. NHS Stop Smoking Services

- When asked, the public welcome such interventions

- To give people a real choice, Government has the responsibility to intervene to help them achieve their goals

- Nudges have their place but are only part of what is necessary to change behaviour
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  – Prof Robert West, UCL
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  – Health Psychology Research Group

• Key funders
For more information

- Susan Michie
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- Books
  - [www.behaviourchangewheel.com](http://www.behaviourchangewheel.com)
  - [www.behaviourchangetheories.com](http://www.behaviourchangetheories.com)

- UCL Centre for Behaviour Change
  - [www.ucl.ac.uk/behaviour-change](http://www.ucl.ac.uk/behaviour-change)
  - Summer School 2015
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Ethical issues

• Intrusiveness
  – restrict (regulation) vs. enable ('nudge')
• Acceptability and ‘public permission’
  – e.g. UK smoking ban, seatbelt use
• Transparency
  – altering behaviour when people are ‘unaware’
• Equality
  – differential effectiveness of interventions according to SES
Intrusiveness:

“don’t lecture and nanny”

“don’t regulate”
However, Government practice goes beyond Nudge

- Minimum alcohol price (Coercion)
- Tobacco tax hike
- Ban on point-of-sale tobacco advertising (Restrictions)
We are not on a level playing field ...

• Avoiding regulation and “nannying”
  – restricts options for public health strategies
  – permits options for health-harming industry
  – likely to increase inequality

• Emphasis on “choice”
  – does not help people achieve their goals
    • we don’t have the choice to live in a non-obesogenic environment or to be free of cues for smoking
  – likely to increase inequality
Nudge emphasises ‘choice’, but …

• Smokers do not have a choice when:
  – their capacity to stop smoking is impaired by their addiction
  – their "free choices" are shaped by marketing
    • e.g. product placement in films

• > 70% smokers want (choose) to stop

• The question is “How best to help people enact their choice?”
Acceptable to the public? Evidence

• When asked, the public
  – do not feel they choose to smoke or to be obese
  – and welcome interventions that limit their “choice”
    • smoking ban,
    • banning TV advertising of junk food before 9pm
      (YouGov surveys)

• Banning smoking in public places
  – The majority of the public wanted this, but it required the Government to make it happen
  – After 5 years of a voluntary agreement with the hospitality trade, only seven smoke-free pubs and bars
  – Since the legislation, public support increased
    – YouGov survey, Beyond Smoking Kills, 2009
Transparency

• Changing behaviour by Nudging is usually without awareness
  – If not aware, don’t have the “choice” to reject