

Applying the Behaviour Change Wheel

.....to designing and evaluating interventions
to help clinicians help patients

Susan Michie

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Director of Centre for Behaviour Change



Canadian Academy of Audiology Conference, Halifax, Canada, 2019



@SusanMichie

Acknowledgments

- Funders including



- The Health Psychology Research Team

- The Centre for Behaviour Change

www.ucl.ac.uk/behavior-change





Who we are

- Core team of researchers, trainers & practitioners in behaviour change
- A cross-disciplinary community of academic experts at UCL & beyond
- Global network of over 4,000 contacts

Our aims

To harness the breadth and depth of academic expertise in behaviour change to

- Increase the quantity and quality of behaviour change research
- Translate that expertise to policy-makers, practitioners, industry, NGOs and researchers

to address **key challenges facing society**

What we do

Training

- International Summer Schools
- Bespoke and open short courses and workshops

Teaching

- MSc Behaviour Change (launched Sept 2017)

Research

- Methods and theories of behaviour change
- Understanding influences on behaviour
- Behaviour change interventions applied to real world issues

Consultancy

- Behaviour change expertise provided to public, private and charity sector organisations

Events: Annual Conference; Public talks and seminars

Resources



This talk will introduce ...

1. A simple model of behaviour for understanding clinician and patient behaviours in their contexts: the COM-B model
2. A linked framework for designing interventions to change behaviour: the Behaviour Change Wheel
3. A method for applying interventions to the local context: the APEASE criteria
4. Illustrate how this has been applied to improve
 - long-term hearing aid use in adult auditory rehabilitation





Professional behaviour

- Many do not follow evidence-based guidelines e.g.
 - making referrals
 - prescribing drugs
 - giving advice re. medication
 - keeping hands clean
- Research shows that many people do not receive 'evidence-based' health care
 - Net 10% of patients receive 'evidence-based' health care
 - Evidence doesn't implement itself
 - Guidelines don't implement themselves
- US: 20% of care that was unnecessary or even harmful *Schuster et al, 2005*

Evidence-based practice depends on changing behaviour





Define problem in behavioural terms

- As precisely as possible
 - e.g. 'improve hearing rehabilitation' *is not* behaviourally specific
- Specify in terms of:
 - **Who** needs to do...
 - **What** differently ?
 - **When/ How often?**
 - and **Where?**



Whose behaviour? Patient behaviours

- **Example: making use of hearing rehabilitation**
- What behaviours?

1. **Begin** using hearing aids



2. **Adapt** and include hearing aids in **everyday** lives

- Solve problems
- Develop strategies to minimise aversiveness



3. **Maintain** their use

- Develop routines and habits



Health professional behaviours

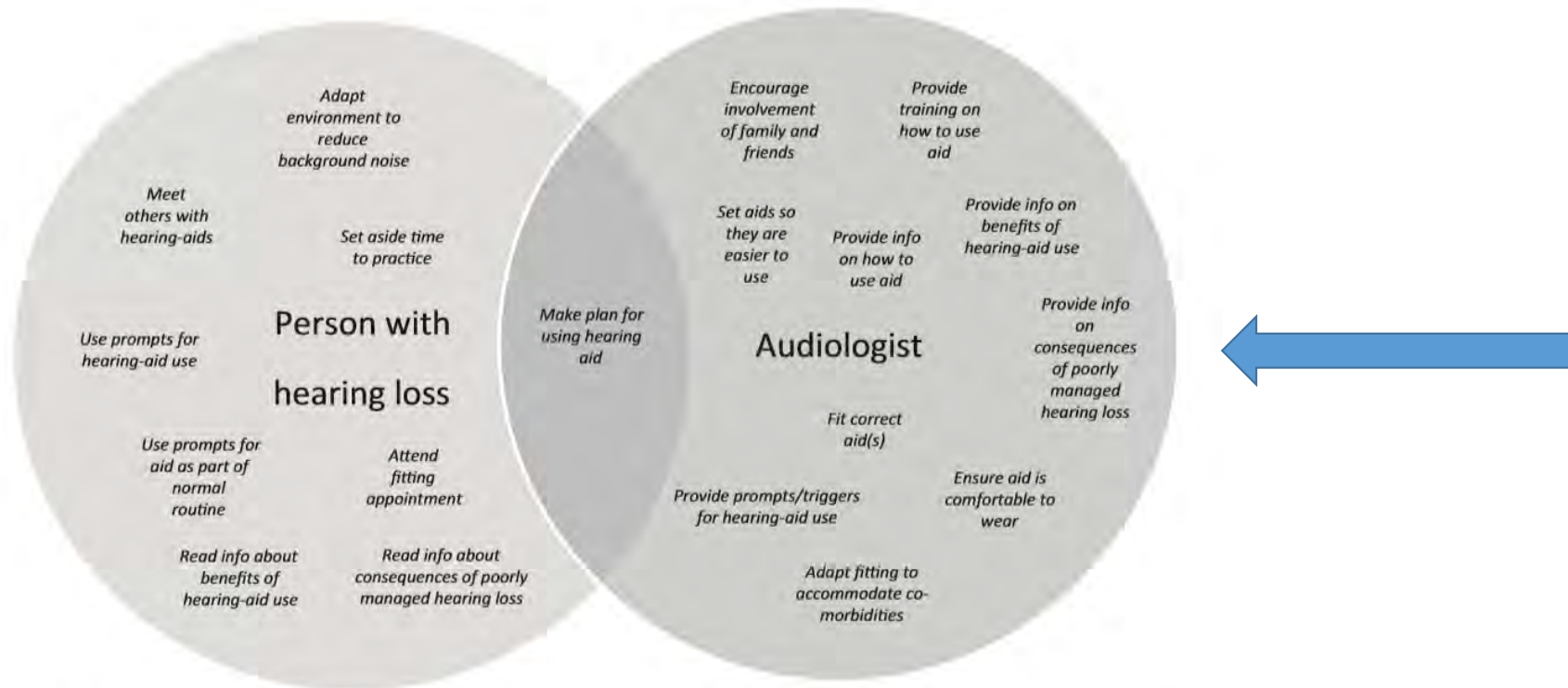
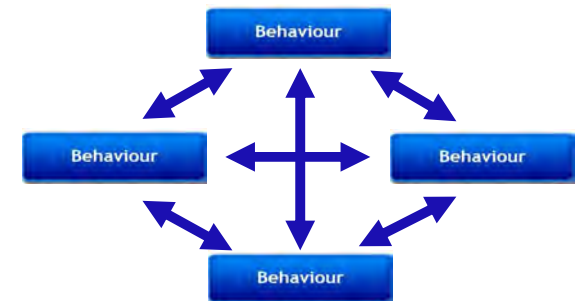


Figure 1. Patient and audiologist component behaviours that interact and may contribute to long-term hearing-aid use (adapted from Barker et al, 2016).

Behaviour: part of a system of behaviours

- ... that facilitate and compete with each other
 - within and between individuals
 - influenced by their social and material world
- Understanding the **system** of behaviours and the **influences** on them is the starting point for identifying where best to intervene and how





Behaviours are different and contexts are different

- If we are to develop effective interventions to change behaviour
 - identify **key players**
 - understand the **specific contexts**

For each group of people, **who**

- **what,**
- **when,**
- **where,**
- **how?**

A systems map

Behaviours relevant to hearing use

Barker, de Lusignan & Cooke, 2016

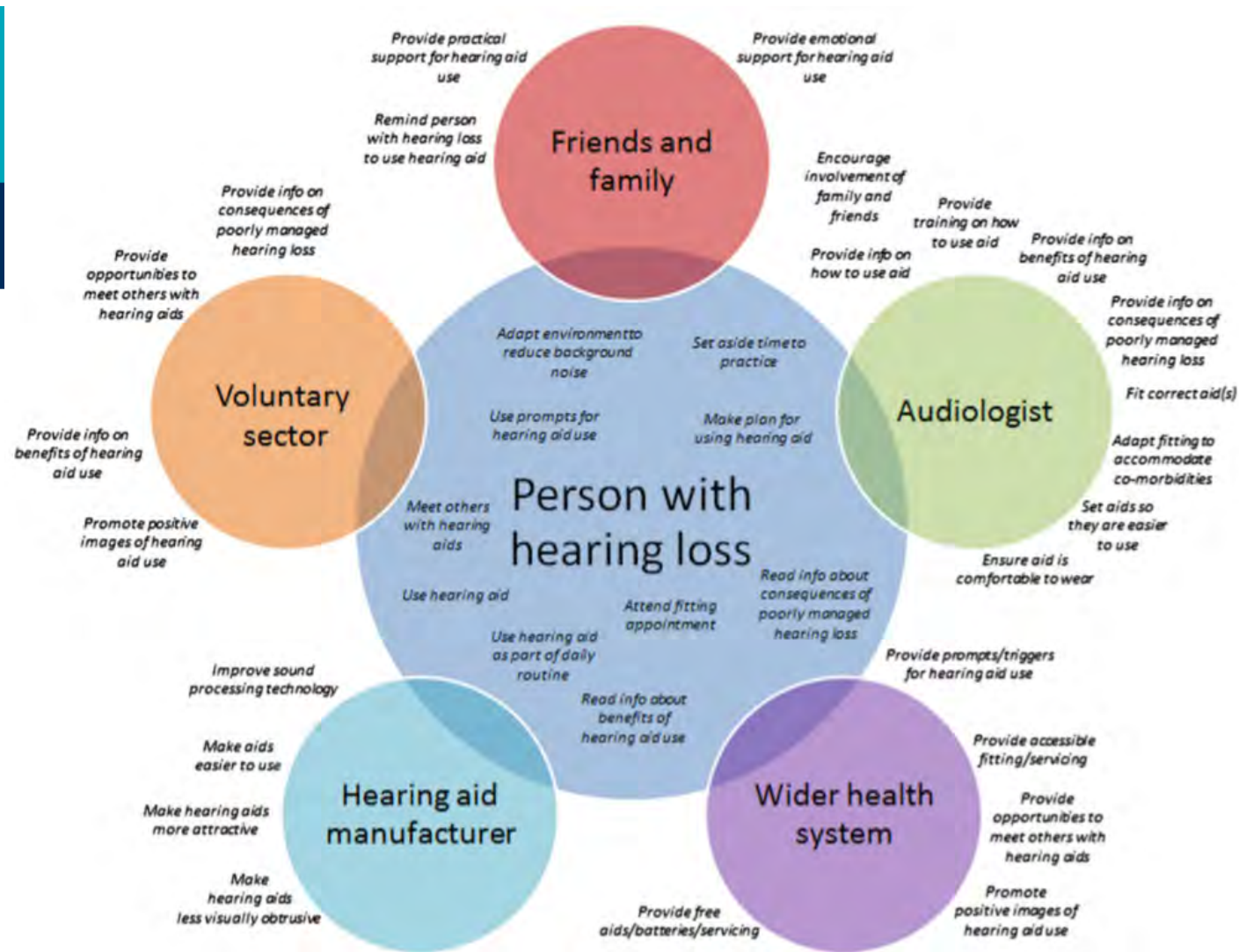
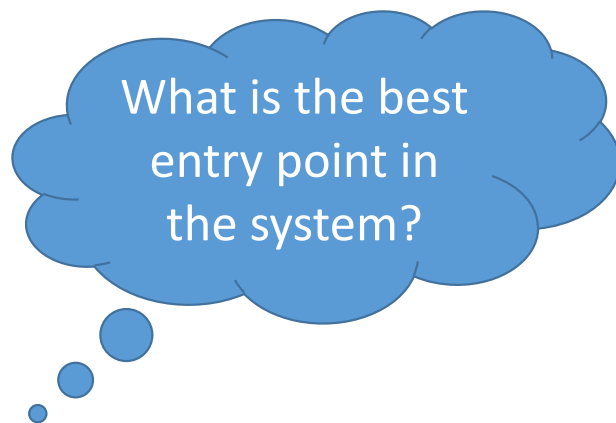


Fig. 2 Behaviours relevant to hearing aid use

Which behaviour to start with?

- Map the **system** of actors, behaviours and relationships between them that are relevant to your problem



1. If I change this, what is the likely **impact**?
2. How **easy** is it to bring about change?
3. **Preference**, acceptability, cost?
4. **Spillover**/generalisability to other behaviours and people?

Selected behaviours

ann. behav. med.
DOI 10.1007/s12160-016-9843-3



ORIGINAL ARTICLE

Improving Collaborative Behaviour Planning in Adult Auditory Rehabilitation: Development of the I-PLAN Intervention Using the Behaviour Change Wheel

Fiona Barker, PhD¹ · Simon de Lusignan, MB BS, MSc, MD¹ · Deborah Cooke, PhD²

ann. behav. med.

Table 1 Specification of target behaviours

Target behaviour	Who	What	When	Where
Provide realistic information of benefits of hearing aid use	Audiologist	Give written info	During each fitting appointment	Fitting room
Provide information on negative consequences on non-use	Audiologist	Give written info	During each fitting appointment	Fitting room
Provide prompts or triggers	Audiologist	Give physical item to act as a cue or discuss other triggers	During each fitting appointment	Fitting room
Collaborate to develop a plan for using aid(s) that promotes habit formation	Audiologist/person with hearing loss	Work together to create a written plan for when, where etc. hearing aid will be used	During each fitting appointment	Fitting room



Key steps in intervention design...

1. Identify your target behaviour **precisely**
 - Who need to do what, when, where, how
2. Recognise that behaviours are part of a **system**
 - of other behaviours within and between people
3. Make a “**behavioural diagnosis**”
 - A good behavioural diagnosis is more likely to lead to effective interventions
4. Use a framework to guide the intervention
e.g. the *Behaviour Change Wheel*





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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



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The COM-B model of behaviour

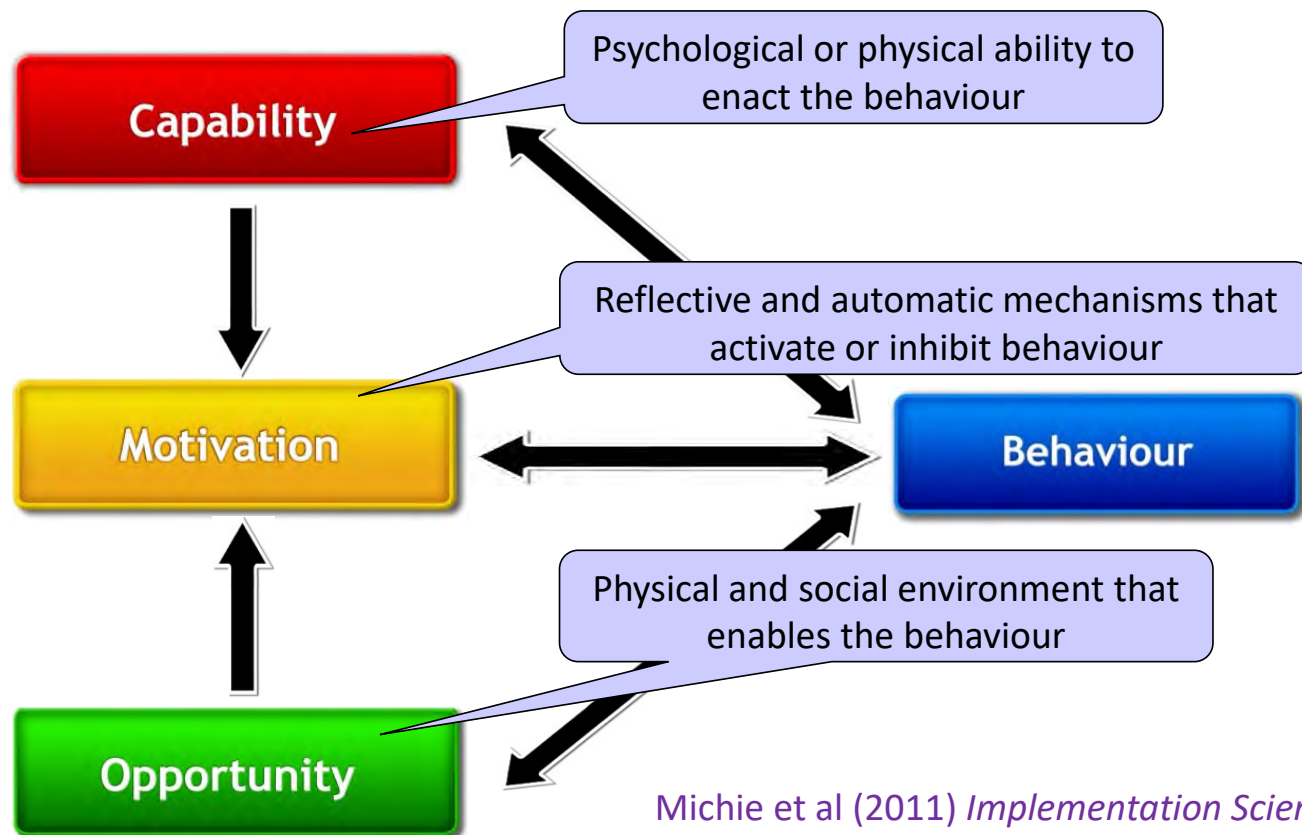


A thought experiment for you ...

*For behaviour to change,
what three conditions need
to exist?*

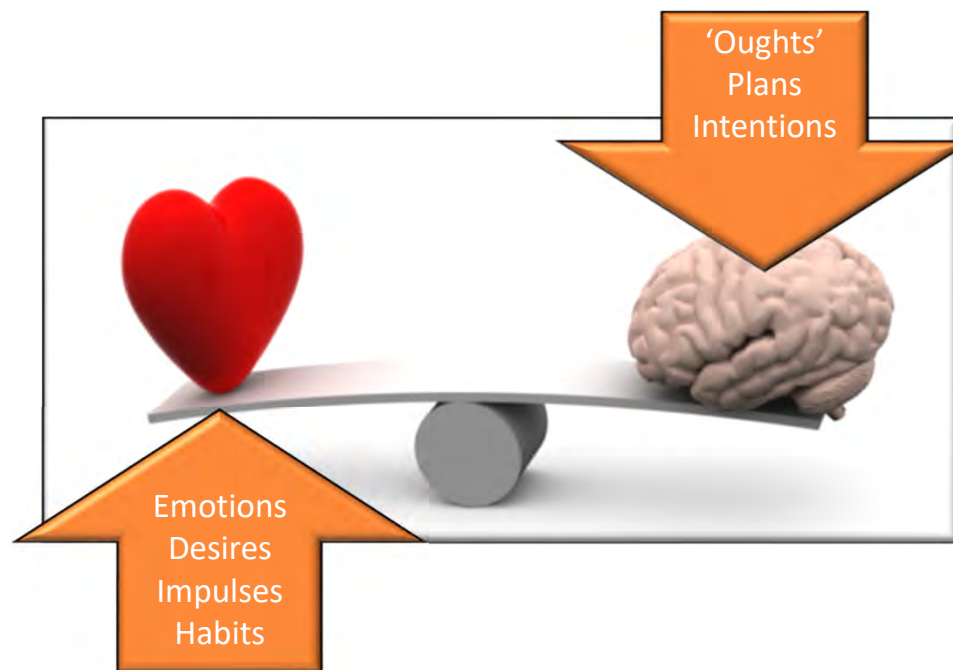


The COM-B model: Behaviour occurs as an interaction between three necessary conditions



... a battle between the “head and the heart”

- Our top-down, evolutionary advanced part of our brain tells us what to do
- Our bottom-up, ancient bit of our brain resists



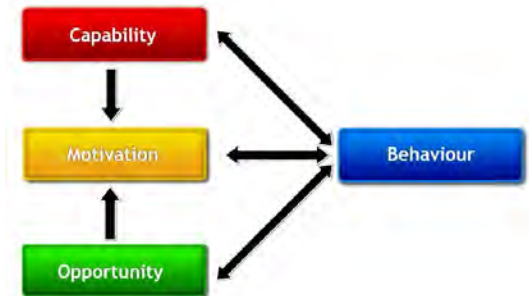


Designing effective interventions

How can we use this model to change behaviour more effectively?

Using COM-B to make a 'behavioural diagnosis'

- What needs to change for the desired behaviour/s to occur (or stop or change form)?
- **Capability** &/or **Motivation** &/or **Opportunity**?
- This analysis forms the basis of intervention design



30 articles investigated 2016

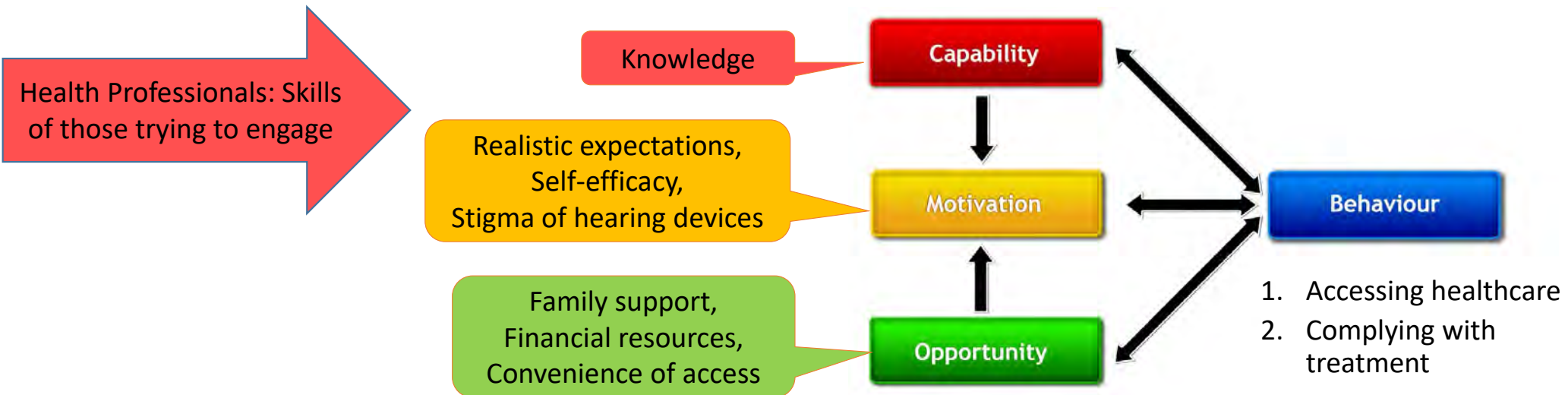
The Laryngoscope
© 2016 The American Laryngological,
Rhinological and Otological Society, Inc.

Systematic Review

Factors Involved in Access and Utilization of Adult Hearing
Healthcare: A Systematic Review

Margaret Barnett, BS; Brian Hixon, MD; Neville Okwiri, MBChB;
Catherine Irungu, MBChB, MMED, ENT; John Ayugi, MBChB, MMED, ENT;
Robin Thompson, MPH; Jennifer B. Shinn, PhD; Matthew L. Bush, MD

• Enablers and Barriers



Why do people fitted with hearing aids not wear them?

McCormack and Fortnum (2013) 10 studies; Ng & Loke (2015) 22 studies

• Capability

1. Maintenance of the hearing aid
2. *whether fitted in a group or individual consultation*

• Opportunity

1. Fit and comfort
2. Device factors e.g. appearance
3. Finance
4. *Support from significant others*

• Motivation

1. Added value
2. Attitude to hearing aid
3. Attitude of health professional
4. *Perceived problem*
5. *Perceived benefit*
6. *Expectation of hearing aid*
7. *Satisfaction*



Key steps in intervention design...

1. Identify your target behaviour precisely
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e.g. the *Behaviour Change Wheel*



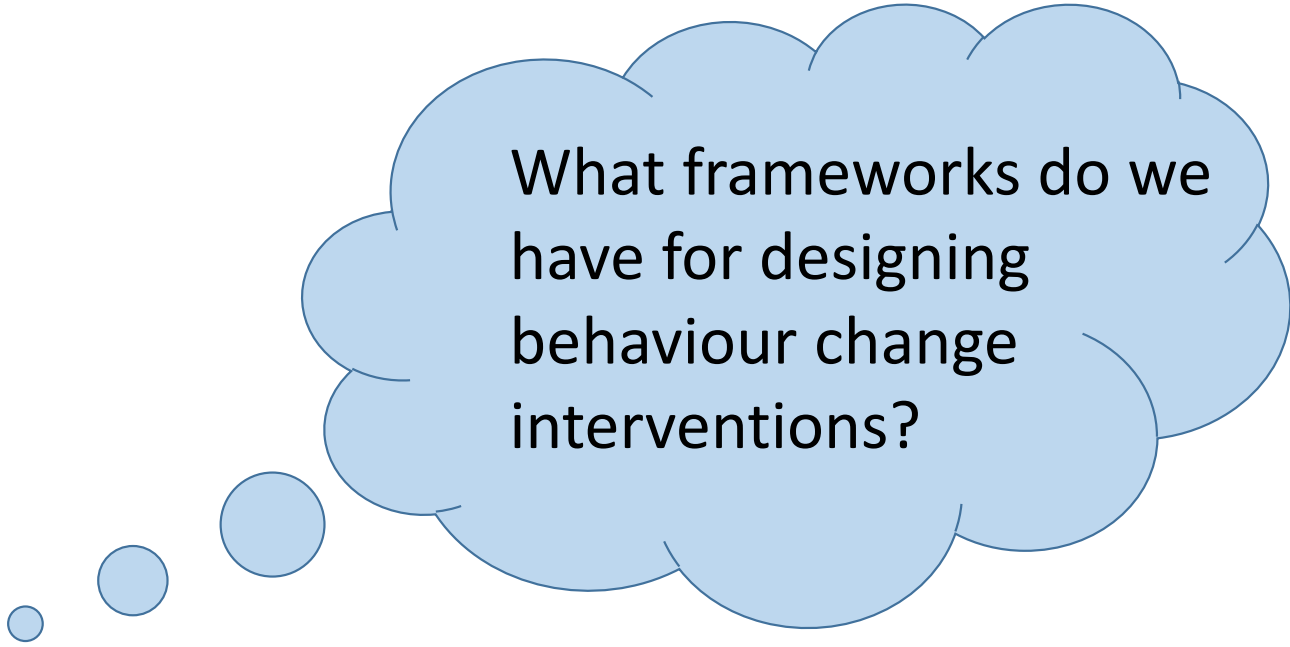


UCL

**A systematic method for
designing interventions and
policies**



Frameworks

A large, light blue thought bubble with a thin black outline, containing the text. It is connected to three smaller, light blue circles of increasing size that trail off to the left, suggesting a thought process.

What frameworks do we have for designing behaviour change interventions?



Need a framework that is ...

- **Comprehensive**

- So you don't miss anything important and effective

- **Coherent**

- So you can design a method for intervention

- **Linked to behaviour**

- So that you can draw on behavioural science

Useable by, and useful to, practitioners, policy-makers, intervention designers & service planners

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.
- None met all our three criteria
- So Developed a synthesis of the 19 frameworks
- ‘The Behaviour Change Wheel’

Michie et al (2011) The Behaviour Change Wheel: a new method for characterising and designing behaviour change interventions, *Implementation Science*.



Hearing research



International Journal of Audiology

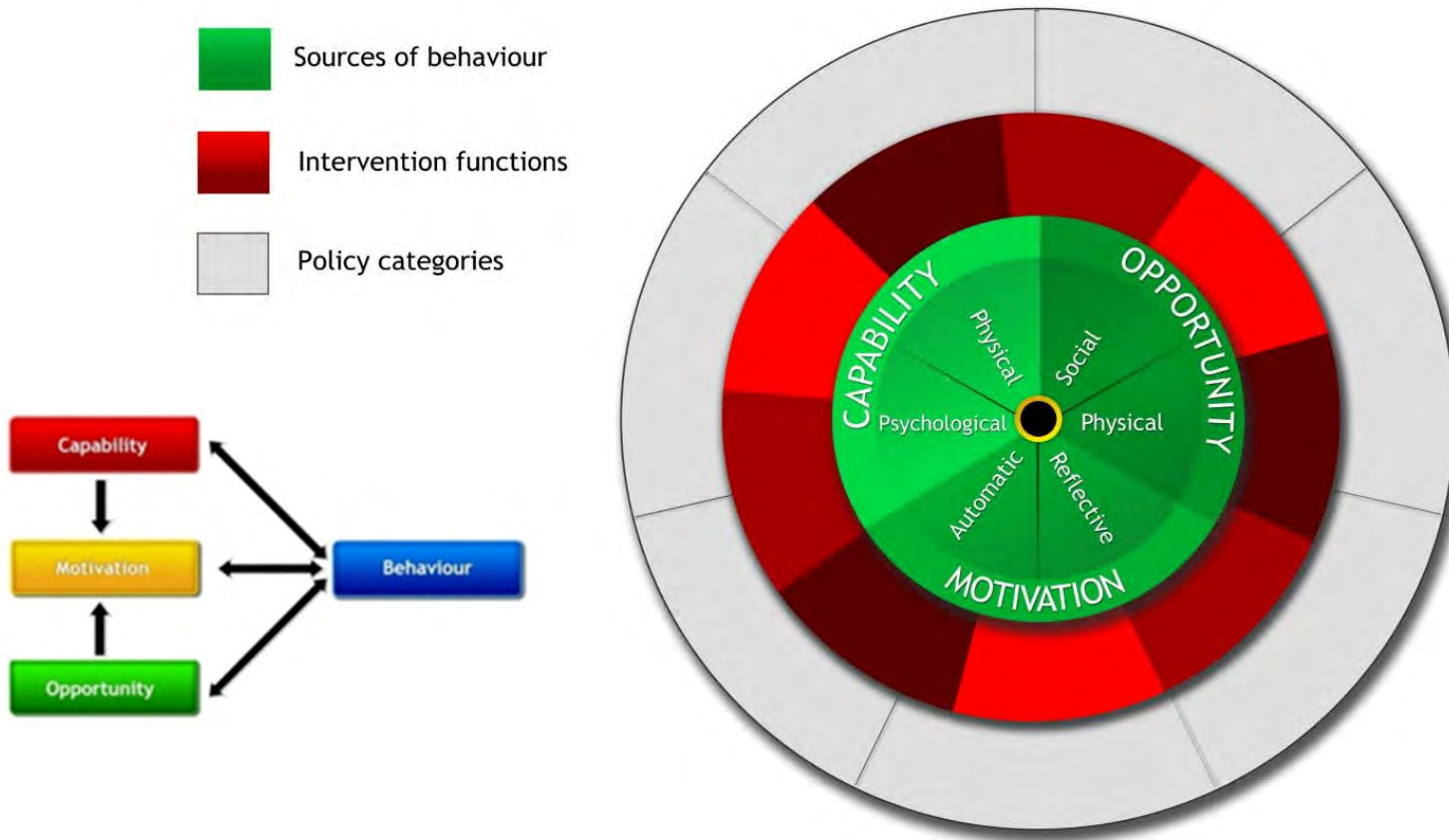
ISSN: 1499-2027 (Print) 1708-8186 (Online) Journal homepage: <https://www.tandfonline.com/loi/ijja20>

Applying theories of health behaviour and change to hearing health research: Time for a new approach

Neil S. Coulson, Melanie A. Ferguson, Helen Henshaw & Eithne Heffernan

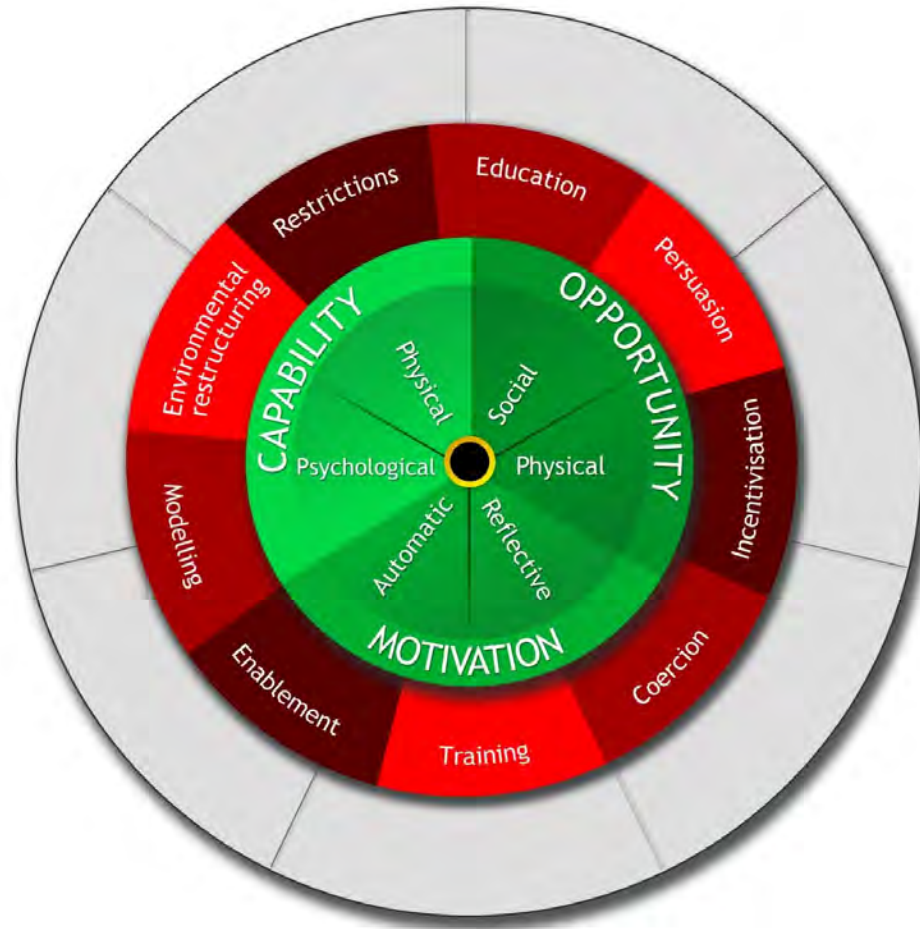
“Attempts to use unreliable models to explain and predict hearing health behaviours should now be replaced by work which integrates the latest in behaviour change science, such as the Behaviour Change Wheel”

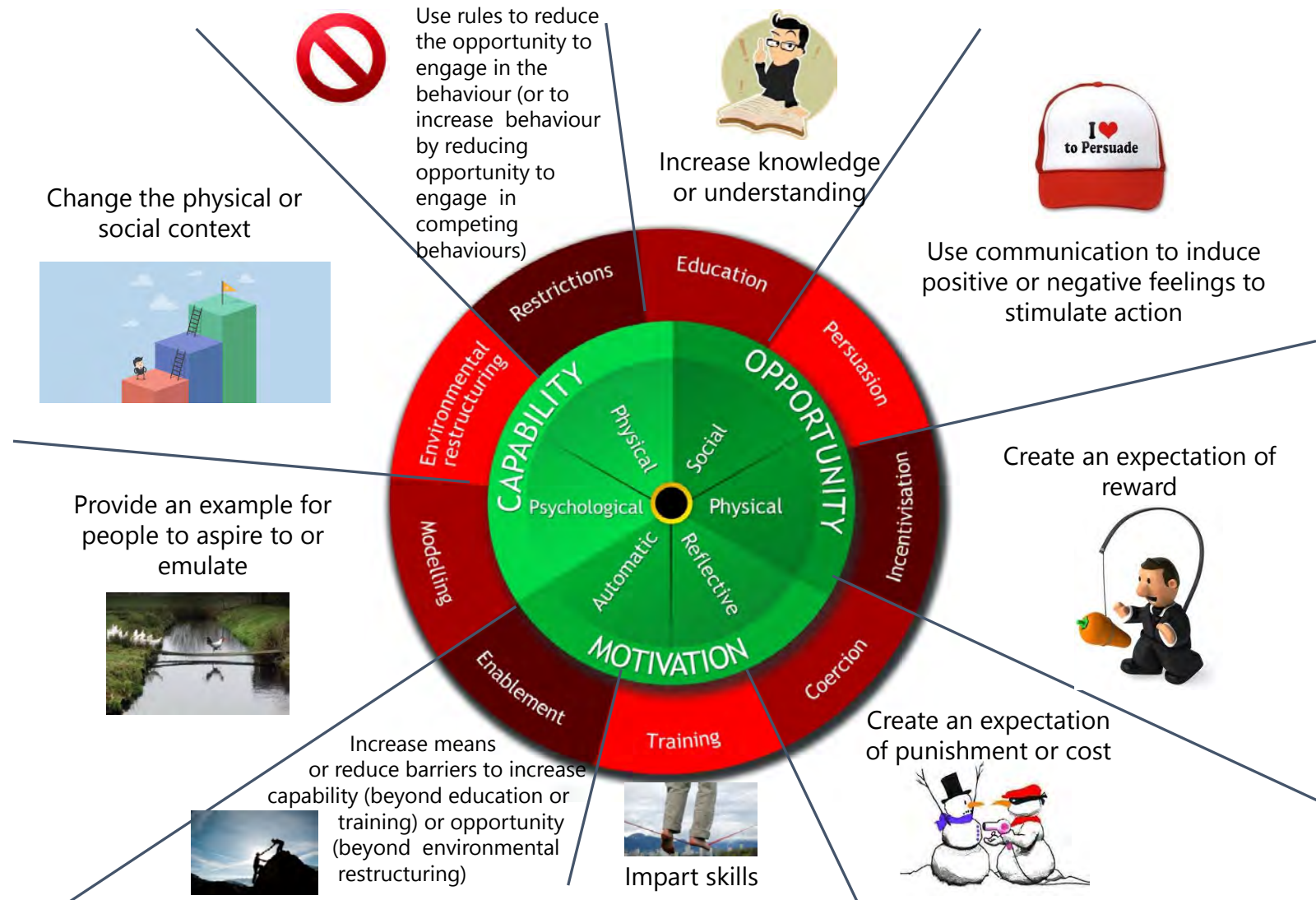
Behaviour Change Wheel: at the hub is COM-B



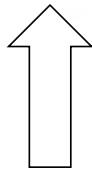
Nine intervention 'functions'

-  Sources of behaviour
-  Intervention functions
-  Policy categories

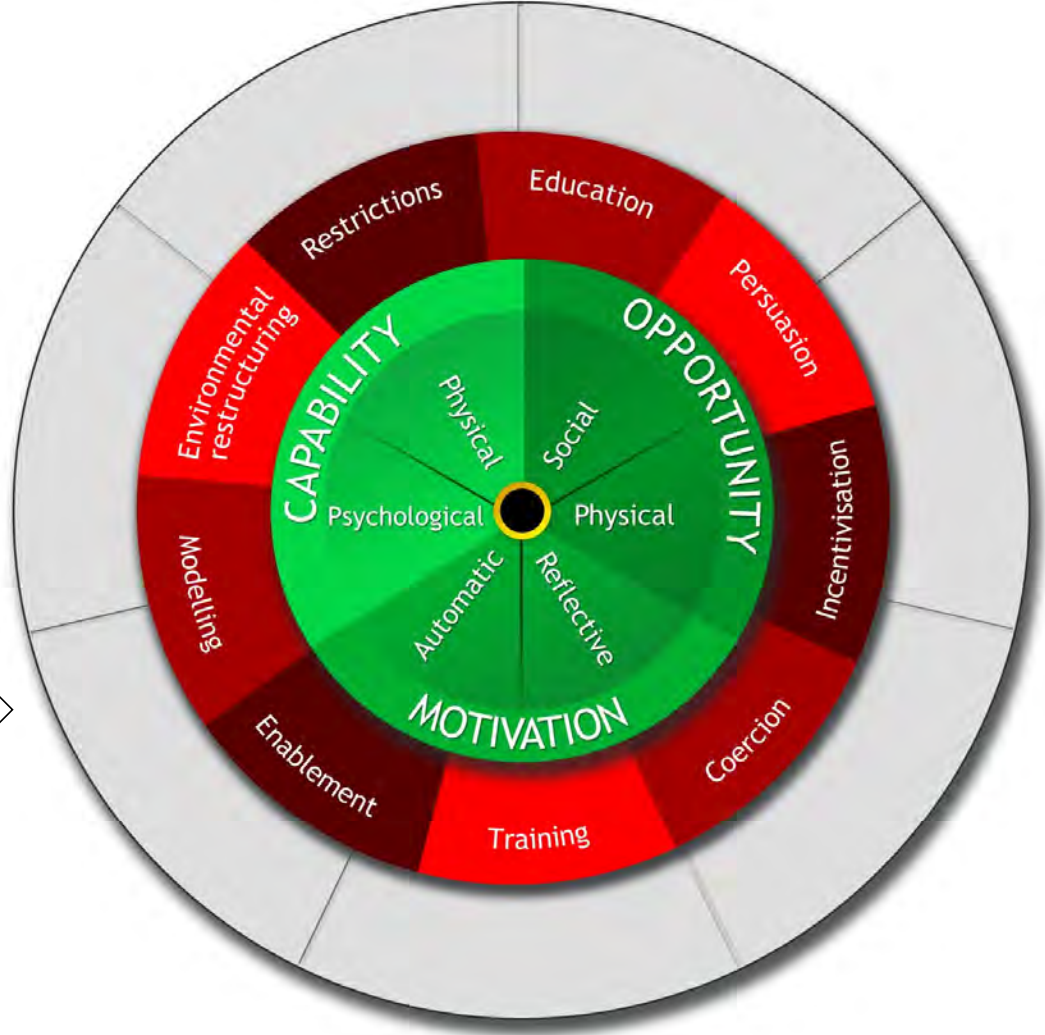
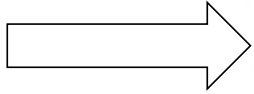




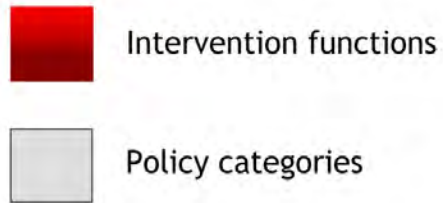
- Sources of behaviour
- Intervention functions
- Policy categories



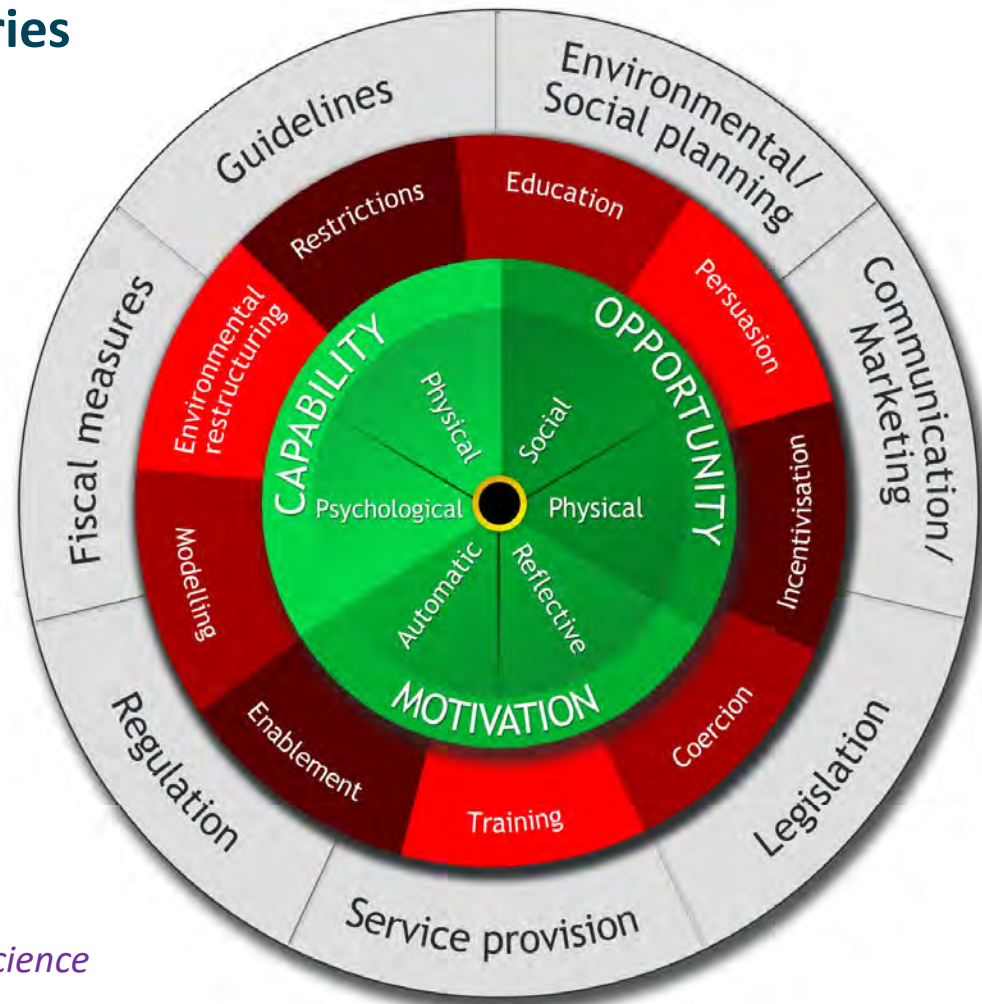
Add policies to maintain change
long-term



Seven policies categories



Policies:
 decisions made
 by authorities
 concerning
 interventions



Michie et al (2011) *Implementation Science*



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

Designing and/or controlling the physical or social environment



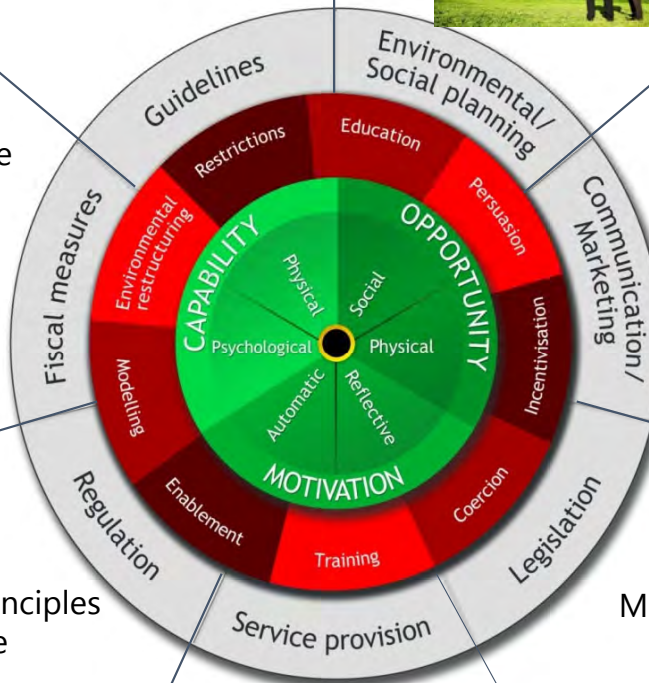
Using the tax system to reduce or increase the financial cost



Environmental/
Social planning



Using print, electronic, telephonic or broadcast media



Establishing rules or principles of behaviour or practice



Delivering a service



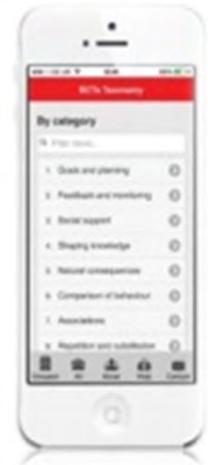
Making or changing laws





Key steps *continued*

- Using Behaviour Change Wheel, identify
 - **intervention** types and
 - **policy** options
- Specific **behaviour change techniques**
 - Taxonomy of 93 behaviour change techniques
(Michie et al, 2013, 2015)
- Select techniques for **local context** using APEASE criteria



Audiology study using BCW

ann. behav. med.
DOI 10.1007/s12160-016-9843-3



ORIGINAL ARTICLE

Improving Collaborative Behaviour Planning in Adult Auditory Rehabilitation: Development of the I-PLAN Intervention Using the Behaviour Change Wheel

Fiona Barker, PhD¹ · Simon de Lusignan, MB BS, MSc, MD¹ · Deborah Cooke, PhD²

- Aim
 - To develop an intervention
 - aimed at promoting regular, long-term use of hearing aids
 - targeted at implementing and embedding key **audiologist behaviours** in the routine hearing aid fitting consultation
- Methods
 - Literature review
 - Qualitative interviews with audiologists

Development of intervention

ann. behav. med.
DOI 10.1007/s12160-016-9843-3



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Improving Collaborative Behaviour Planning in Adult Auditory Rehabilitation: Development of the I-PLAN Intervention Using the Behaviour Change Wheel

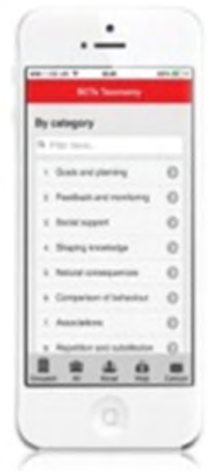
Fiona Barker, PhD¹ · Simon de Lusignan, MB BS, MSc, MD¹ · Deborah Cooke, PhD²

- Target behaviours
 - giving information about
 - the benefits of hearing aid use and
 - the negative consequences of non-use
 - providing prompts for use and engaging in collaborative behavioural planning for use
- The behavioural analysis
 - Psychological capability, opportunity and motivation were potential drivers of these behaviours
- The intervention types deemed to be relevant and feasible
 - Education, coercion, training, environmental restructuring, modelling and enablement



Key steps *continued*

5. Using Behaviour Change Wheel, identify
 - intervention types and
 - policy options
6. Specific **behaviour change techniques**
 - Taxonomy of 93 behaviour change techniques
([Michie et al, 2013, 2015](#))
7. Select techniques for local context using APEASE criteria



Behaviour change techniques (BCTs)

- Have the *potential* to be the ‘active ingredients’ of an intervention
- Aim to be the smallest components that on their own can bring about change
- Observable and replicable
- Can be used alone or in combination

ann. behav. med. (2013) 46:81–95
DOI 10.1007/s12160-013-9486-6

ORIGINAL ARTICLE

The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions

Susan Michie, DPhil, CPsychol • Michelle Richardson, PhD • Marie Johnston, PhD, CPsychol • Charles Abraham, DPhil, CPsychol • Jill Francis, PhD, CPsychol • Wendy Hardeman, PhD • Martin P. Eccles, MD • James Cane, PhD • Caroline E. Wood, PhD

Published online: 20 March 2013
© The Society of Behavioral Medicine 2013

BCT Taxonomy v1: 93 items in 16 groupings



Page	Grouping and BCTs	Page	Grouping and BCTs	Page	Grouping and BCTs
1	1. Goals and planning	8	6. Comparison of behaviour	16	12. Antecedents
	1.1. Goal setting (behavior)		6.1. Demonstration of the behavior		12.1. Restructuring the physical environment
	1.2. Problem solving		6.2. Social comparison		12.2. Restructuring the social environment
	1.3. Goal setting (outcome)		6.3. Information about others' approval		12.3. Avoidance/reducing exposure to cues for the behavior
	1.4. Action planning				12.4. Distraction
	1.5. Review behavior goal(s)				12.5. Adding objects to the
	1.6. Discrepancy between current behavior and goal	9	7. Associations		
	1.7. Review outcome goal(s)		7.1. Prompts/cues		

No.	Label	Definition	Examples
1. Goals and planning			
1.1	<i>Goal setting (behavior)</i>	Set or agree on a goal defined in terms of the behavior to be achieved <i>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, <u>also</u> code 1.4, Action planning</i>	Agree on a daily walking goal (e.g. 3 miles) with the person and reach agreement about the goal Set the goal of eating 5 pieces of fruit per day as specified in public health guidelines

- 1.1 Goal setting (behaviour)
- 1.2 Problem solving
- 1.3 Goal setting (outcome)
- 1.4 Action planning
- 1.5 Review behaviour (goals)
- 1.6 Discrepancy between current behaviour and goal
- 1.7 Review outcome goal(s)
- 1.8 Behavioural contract
- 1.9 Commitment
- 2.1 Monitoring of behaviour by others without feedback
- 2.2. Feedback on behaviour
- 2.3 Self-monitoring of behaviour
- 2.4 Self-monitoring of outcome(s) of behaviour
- 2.5 Monitoring of outcomes of behaviour without feedback
- 2.6 Biofeedback
- 2.7 Feedback on outcome(s) of behaviour
- 3.1 Social support (unspecified)
- 3.2 Social support (practical)
- 3.3 Social support (emotional)

- 4.1 Instruction on how to perform the behaviour
- 4.2 Information about Antecedents
- 4.3 Re-attribution
- 4.4 Behavioural experiments
- 5.1 Information about health consequences
- 5.2 Salience of consequences
- 5.3 Information about social and environmental consequences
- 5.4 Monitoring of emotional consequences
- 5.5 Anticipated regret
- 5.6 Information about emotional consequences
- 6.1 Demonstration of the behaviour
- 6.2 Social comparison
- 6.3 Information about others' approval
- 7.1 Prompts/cues
- 7.2 Cue signaling reward
- 7.3 Reduce prompts/cues
- 7.4 Remove access to the reward
- 7.5 Remove aversive stimuli

- 7.6 Satiation
- 7.7 Exposure
- 7.8 Associative learning
- 8.1 Behavioural practice/rehearsal
- 8.2 Behaviour substitution
- 8.3 Habit formation
- 8.4 Habit reversal
- 8.5 Overcorrection
- 8.6 Generalisation of target behaviour
- 8.7 Graded tasks
- 9.1 Credible source
- 9.2 Pros and cons
- 9.3 Comparative imagining of future outcomes
- 10.1 Material incentive (behaviour)
- 10.2 Material reward (behaviour)
- 10.3 Non-specific reward
- 10.4 Social reward
- 10.5 Social incentive
- 10.6 Non-specific incentive



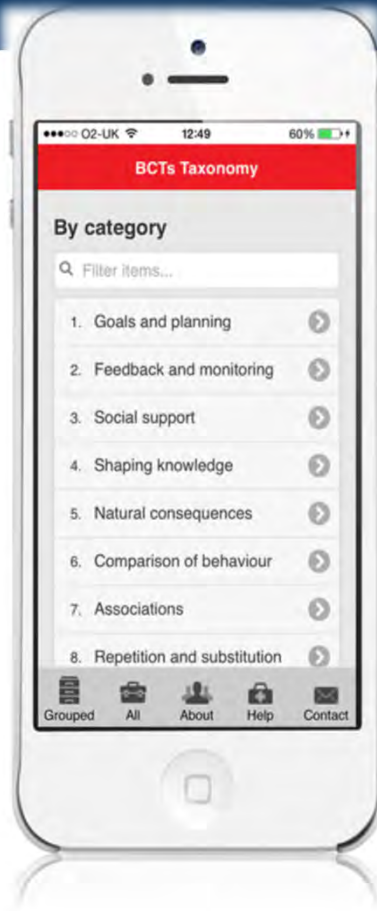
10.7 Self-incentive
10.8 Incentive (outcome)
10.9 Self-reward
10.10 Reward (outcome)
10.11 Future punishment
11.1 Pharmacological support
11.2 Reduce negative emotions
11.3 Conserving mental resources
11.4 Paradoxical instructions
12.1 Restructuring the physical environment
12.2 Restructuring the social environment
12.3 Avoidance/reducing exposure to cues for the behaviour
12.4 Distraction
12.5 Adding objects to the environment
12.6 Body changes
13.1 Identification as self as role model
13.2 Framing/reframing
13.3 Incompatible beliefs

13.4 Valued self-identity
13.5 Identity associated with changed behaviour
14.1 Behaviour cost
14.2 Punishment
14.3 Remove reward
14.4 Reward approximation
14.5 Rewarding completion
14.6 Situation-specific reward
14.7 Reward incompatible behaviour
14.8 Reward alternative behaviour
14.9 Reduce reward frequency
14.10 Remove punishment
15.1 Verbal persuasion about capability
15.2 Mental rehearsal of successful performance
15.3 Focus on past success
15.4 Self-talk
16.1 Imaginary punishment
16.2 Imaginary reward
16.3 Vicarious consequences.





The BCT smartphone app & online training



*Find app by
search term:
BCTs*



and



*Search app by
BCT label, BCT
category or
alphabetically*



www.bct-taxonomy.com



Selecting BCTs for interventions

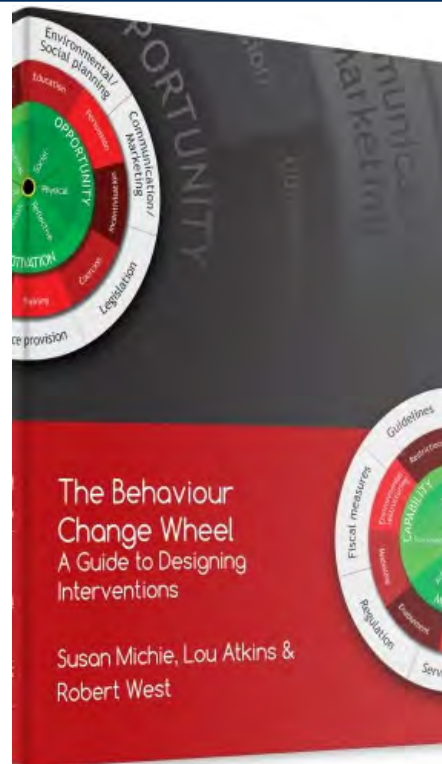


Table 3.3 Linking intervention functions to BCTs

Intervention function	Individual BCTs
Education	<p>Most frequently used BCTs:</p> <ul style="list-style-type: none"> Information about social and environmental consequences Information about health consequences Feedback on behaviour Feedback on outcome(s) of the behaviour Prompts/cues Self-monitoring of behaviour <p>Less frequently used BCTs:</p> <ul style="list-style-type: none"> Biofeedback Self-monitoring of outcome(s) of behaviour Cue signalling reward Satiation Information about antecedents Re-attribution Behavioural experiments Information about emotional consequences Information about others' approval
Persuasion	<p>Most frequently used BCTs:</p> <ul style="list-style-type: none"> Credible source Information about social and environmental consequences Information about health consequences Feedback on behaviour Feedback on outcome(s) of the behaviour <p>Less frequently used BCTs:</p> <ul style="list-style-type: none"> Biofeedback Re-attribution Focus on past success Verbal persuasion about capability

Audiologists' use of behaviour change techniques (BCTs)

- Barker et al, 2016

- 9 routine adult hearing-aid fitting consultations videotaped across 5 randomly selected English NHS audiology departments
- identified opportunities to use additional BCTs that might encourage hearing-aid use:
 - collaborating with patients to develop a [behavioural plan](#) for hearing aid use including goal-setting, action-planning and problem-solving
 - involving [significant others](#)
 - providing information on the [benefits of hearing-aid use & the consequences of non-use](#)
 - giving advice about using [prompts/cues](#) for hearing-aid use

Table 3. Use of behaviour change techniques (BCTs) across nine hearing-aid fittings.

<i>Cluster (theme)</i>	<i>BCTv1 code</i>	<i>BCT name</i>	<i>Definition</i>	<i>Total number of uses across all consultations</i>	<i>Median number of uses within a fitting consultation (range)</i>
Goals and planning	1.1	Goal-setting (behaviour)	Set or agree a goal in terms of the behaviour to be achieved.	26	3 (0-5)
	1.4	Action-planning	Prompt detailed planning of performance of the behaviour (must include at least one of context, frequency, duration, and intensity).	5	1 (0-1)
Social support	3.2	Social support (practical)	Advise on, arrange or provide practical help for performance of the behaviour.	34	4 (1-7)
Shaping knowledge	4.1	Instruction on how to perform a behaviour	Advise on or agree on how to perform the behaviour.	124	17 (5-22)
Natural consequences	5.1	Information about health consequences	Provide information about health consequences of performing the behaviour.	37	4 (0-8)
	5.3	Information about social and environmental consequences	Provide information about social and environmental consequences of performing the behaviour.	60	7 (1-11)
	5.6	Information about emotional consequences	Provide information about emotional consequences of performing the behaviour.	1	0 (0-1)
Comparison of behaviour	6.1	Demonstration of the behaviour	Provide an observable sample of the performance of the behaviour.	56	6 (2-11)
Repetition and substitution	8.1	Behavioural practice or rehearsal	Prompt practice or rehearsal of the performance of the behaviour one or more times in a context or at a time when the performance may not be necessary in order to increase habit and skill.	45	4 (1-11)
	8.7	Graded tasks	Set easy-to-perform tasks, making them increasingly difficult, but achievable, until behaviour is performed.	5	0 (0-2)
Antecedents	12.5	Adding objects to the environment	Add objects to the environment in order to facilitate performance of the behaviour.	23	2 (1-4)

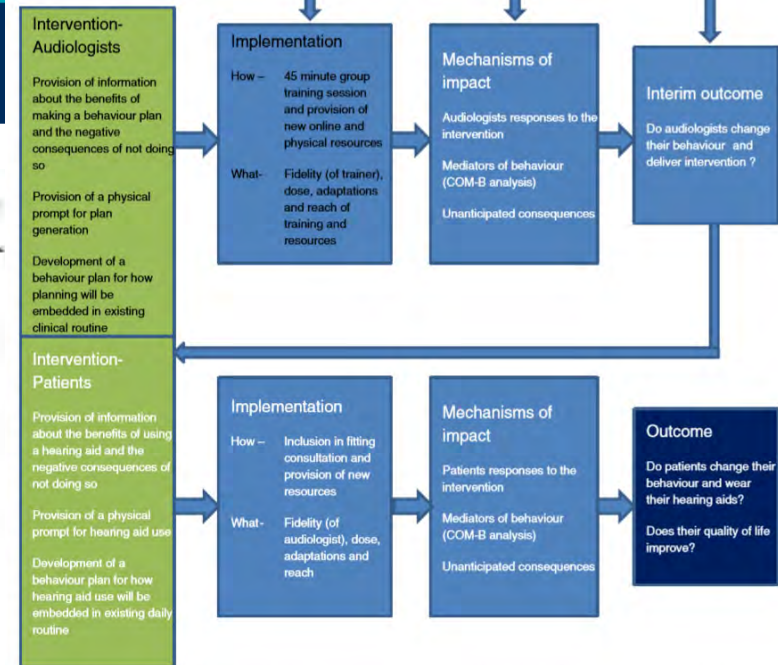
Theory-based intervention

ann. behav. med.
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Logic model showing intervention levels and feasibility evaluation as recommended in MRC guidance on process evaluations [64]

Improving Collaborative Behaviour Planning in Adult Auditory Rehabilitation: Development of the I-PLAN Intervention Using the Behaviour Change Wheel

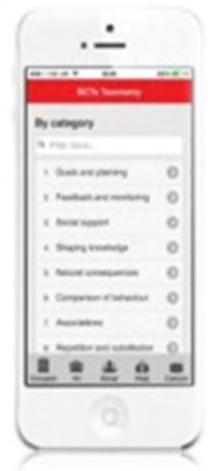
Fiona Barker, PhD¹ · Simon de Lusignan, MB BS, MSc, MD¹ · Deborah Cooke, PhD²

Using BCW led to 5 BCTs beyond usual practice

BCT			
	<u>Prompts/cues</u>	7.1	Introduce or define environmental or social stimulus with the purpose of prompting or curing the behaviour. The prompt or cue would normally occur at the time or place of performance
<u>Goal setting (behaviour)</u> <u>Problem solving</u>	Behavioural practice/rehearsal	8.1	Prompt practice or rehearsal of the performance of the behaviour one or more times in a context or at a time when the performance may not be necessary, in order to increase habit and skill
Action planning	<u>Habit formation</u>	8.3	Prompt rehearsal and repetition of the behaviour in the same context repeatedly so that the context elicits the behaviour
Instruction on how to perform a behaviour Information about health consequences	<u>Restructuring the social environment</u>	12.2	Change or advise to change the social environment in order to facilitate performance of the wanted behaviour or create barriers to the unwanted behaviour (other than prompts/cues, rewards or punishments)
Information about social and environmental consequences Demonstration of the behaviour	Adding objects to the environment <u>Punishment</u>	12.5 14.2	Add objects to the environment in order to facilitate performance of the behaviour Arrange for aversive consequence contingent on the performance of the unwanted behaviour

Key steps *continued*

5. Using Behaviour Change Wheel, identify
 - intervention types and
 - policy options
6. Specific behaviour change techniques
 - Taxonomy of 93 behaviour change techniques (Michie et al, 2013, 2015)
7. Select techniques for **local context** using APEASE criteria





Applying to local contexts: The APEASE criteria

- **A**ffordability
- **P**acticability
- **E**ffectiveness/cost-effectiveness
- **A**ceptability
 - public
 - professional
 - political
- **S**ide-effects/safety
- **E**quity



www.behaviourchangewheel.com

Conclusions

- This is the first study to use the Behaviour Change Wheel to develop a complex intervention in audiology
- Collaborative behavioural planning for hearing aid use is more likely to occur if their psychological capability, physical and social opportunity, and reflective and automatic motivation were addressed
- The theory-based development of the intervention will facilitate evaluation of its feasibility and effectiveness

ann. behav. med.
DOI 10.1007/s12160-016-9843-3

ORIGINAL ARTICLE

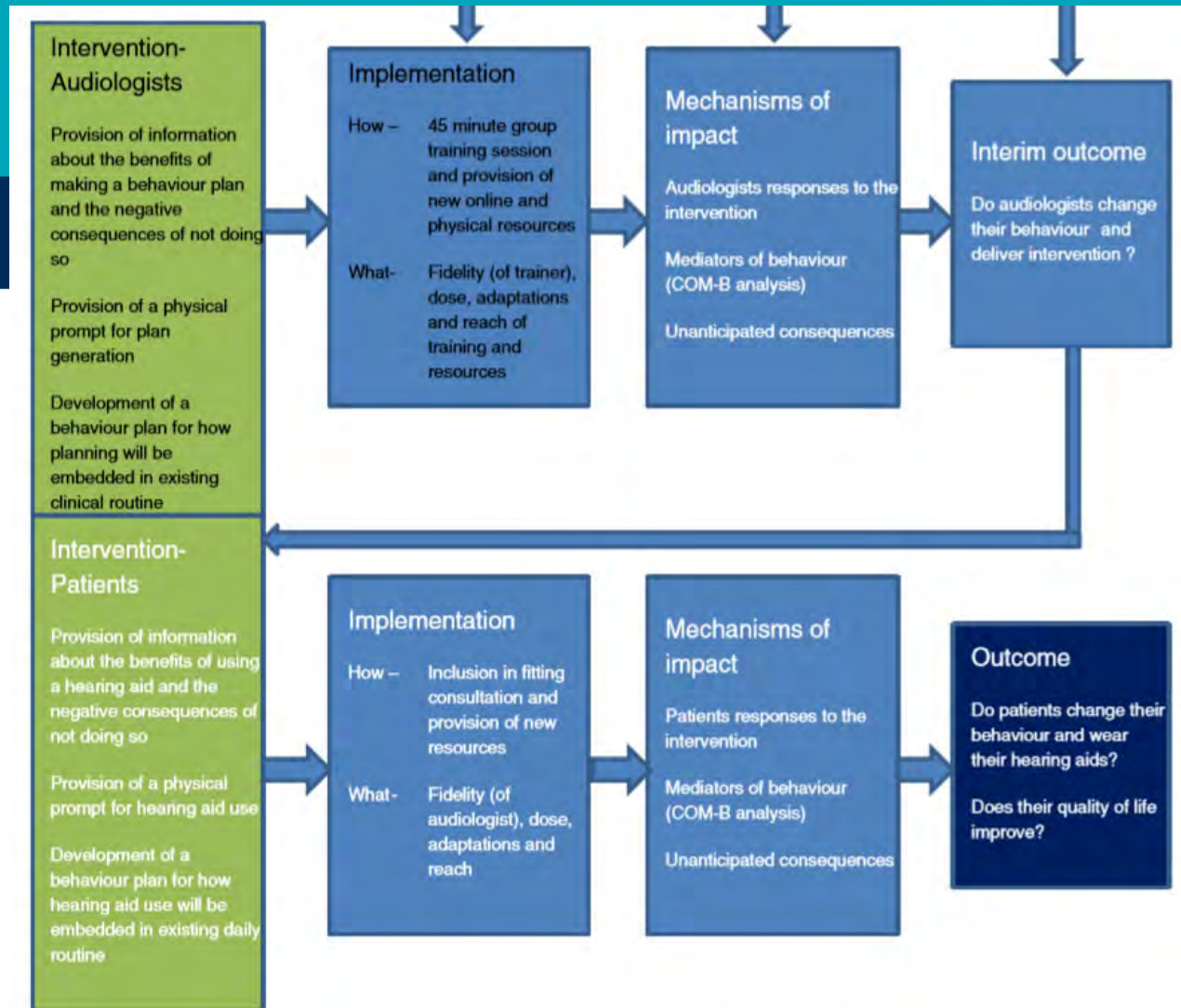
Improving Collaborative Behaviour Planning in Adult Auditory Rehabilitation: Development of the I-PLAN Intervention Using the Behaviour Change Wheel

Fiona Barker, PhD¹ · Simon de Lusignan, MB BS, MSc, MD¹ · Deborah Cooke, PhD²



I-PLAN Logic model

1. What the intervention is
 - For audiologists
 - For patients
2. Plan for implementing it
3. How the intervention works
4. Intended outcomes



Logic model showing intervention levels and feasibility evaluation as recommended in MRC guidance on process evaluations [64]



Behaviour Change Wheel been used to ...

1. **Design** interventions and policies
2. “Retrofit” – **identify** what is in current interventions and policies
 - eg by Government departments
3. Provide a framework for **evaluation**
 - How are interventions working?
4. Structure **systematic reviews** of evidence





How has the BCT Taxonomy been used?

- Practice and training e.g.
- **Research:** evidence synthesis, designing interventions, evaluation
 - Cited > 2000 times across 6 continents
- >4000 researchers, practitioners and policy makers trained in its use
- **Policy:** specifying current & developing policy, interventions & implementation strategies
 - UK: Public Health England, NICE



<http://www.mcrimpsci.org/change-exchange/cards-for-change/>

International applications of the BCW



Australia

- Management for Borderline Gestational Diabetes Mellitus
- Reduce hip/knee surgery in osteoarthritis



Ghana

- Reduce risk of infection in changing toilet cartridges in slums



India

- Smartphone app to reduce cardiovascular disease risk



International Red Cross

- Train volunteers



Kenya

- Improve paediatric health care



Kosovo

- Improve maternal health guideline implementation



Netherlands

- An organisational intervention tool



Papua New Guinea

- Change Betel nut chewing behaviour



Thailand

- Preventing melioidosis



USA

- Improving colorectal cancer screening
- Providing long-acting reversible contraception to adolescents
- Improve parenting practices for children with challenging behaviour

The Behaviour Change Toolbox

- Use linearly in a sequence to design an intervention

Or

- Use as a toolkit
 - one or more tools depending on the 'job'



Final word: Maintaining behaviour change

- Changing behaviour is hard
 - Maintaining that change is harder
- Effective strategies
 - **Don't** rely on individual choice and decision-making
 - **Do** rely on the environment and making behaviour automatic
 - **environmental** support and prompts
 - building **routines**
 - **feedback**
 - rewards and **incentives**



CBC Summer School

CBC UK
Summer
School 2020



Three Summer Schools in Behaviour Change

One week long, in London

World-leading teachers plus small mentored groups

Advanced Summer School

Systems thinking, organisational change, evaluation,
In-depth study of motivation



<https://www.ucl.ac.uk/behaviour-change/training/summer-school>



CBC Conference

6th Annual Digital Health Conference
Behaviour Change for Health:
Current and Emerging Science and Technologies
06-07 April 2020



6th annual digital health conference

06 & 07 April 2020 - UCL Institute of Education, London

Why attend?

The 2020 conference celebrates academic and industry research and practice to change health-related behaviour using digital and non-digital approaches

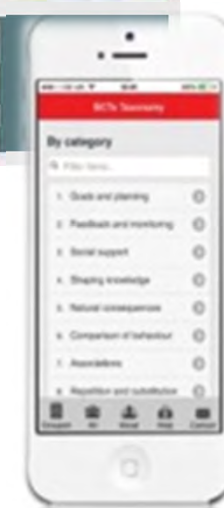
<https://www.ucl.ac.uk/behaviour-change/cbc-conference>



UCL Centre for Behaviour Change



Centre for Behaviour Change resources... e.g.



www.ucl.ac.uk/behaviour-change

All proceeds from CBC teaching, training, books and products go to further development



UCL Centre for
Behaviour Change



UCL

Questions?
Comments?

www.ucl.ac.uk/behaviour-change



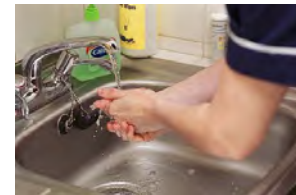
@SusanMichie

- ADDITIONAL SLIDES

The problem of hand hygiene

5000 die a year in the UK, others disabled, due to hospital acquired infections (e.g. MRSA)

- Disinfecting hands effective in preventing infection
- Specific guidelines for clinical practice
- Poorly implemented
 - on average 40% occasions (5%-81%)
- Interventions to improve hand hygiene
 - have had only small and short-term effects
 - e.g. [Naikoba & Hayward, 2001](#)
 - not informed by behavioural science



Nurse Hand Hygiene in Hospitals: Whose behaviours?

- Nurses and doctors
 - Cleaning hands in identified situations
- Infection control nurses
 - Conducting audits and feeding back results
- Staff responsible for distributing alcohol handrub
 - Ensuring that dispensers contain alcohol handrub
- Patients
 - Asking whether doctors'/nurses' hands are clean



- **Opportunity**

- Alcohol hand rub beside every bed



- **Motivation**

- Evidence shows nurses are motivated to clean their hands
- Persuasive posters



- **Capability**

- ???
- Behavioural science ...



Capability

- Nurses have the capability to clean their hands ...
 - But not to
 - pay **attention** to this behaviour over other competing behaviours
 - develop
 - **routines** for noticing when the behaviour does not occur, and
 - **plans** for acting differently in future

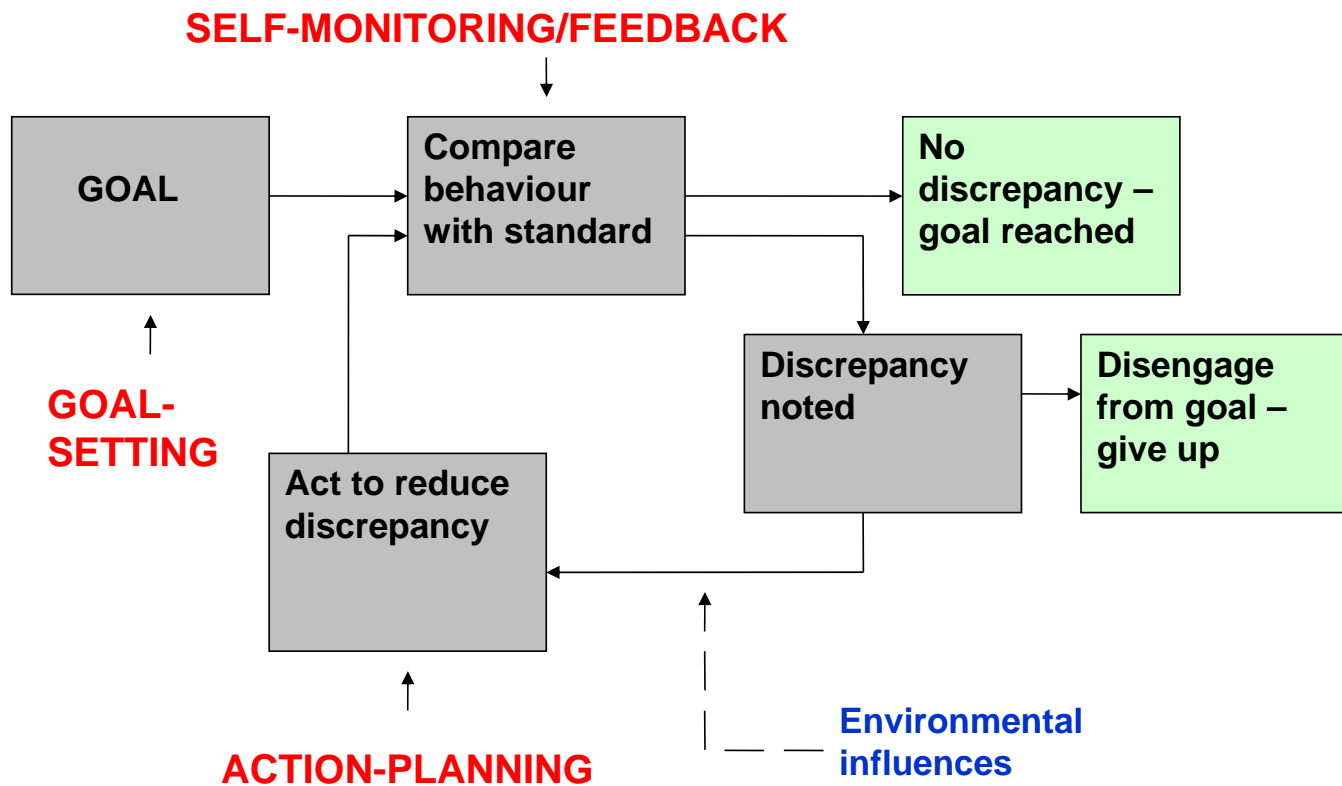


Intervention to increase Capability

- **Train** staff to
 - set goals and
 - make action plans
- **Enable** infection control nurses to:
 - observe their behaviour and give feedback
 - support development of action plans
- *Intervention based on behavioural theory (Control Theory and Learning Theory)*




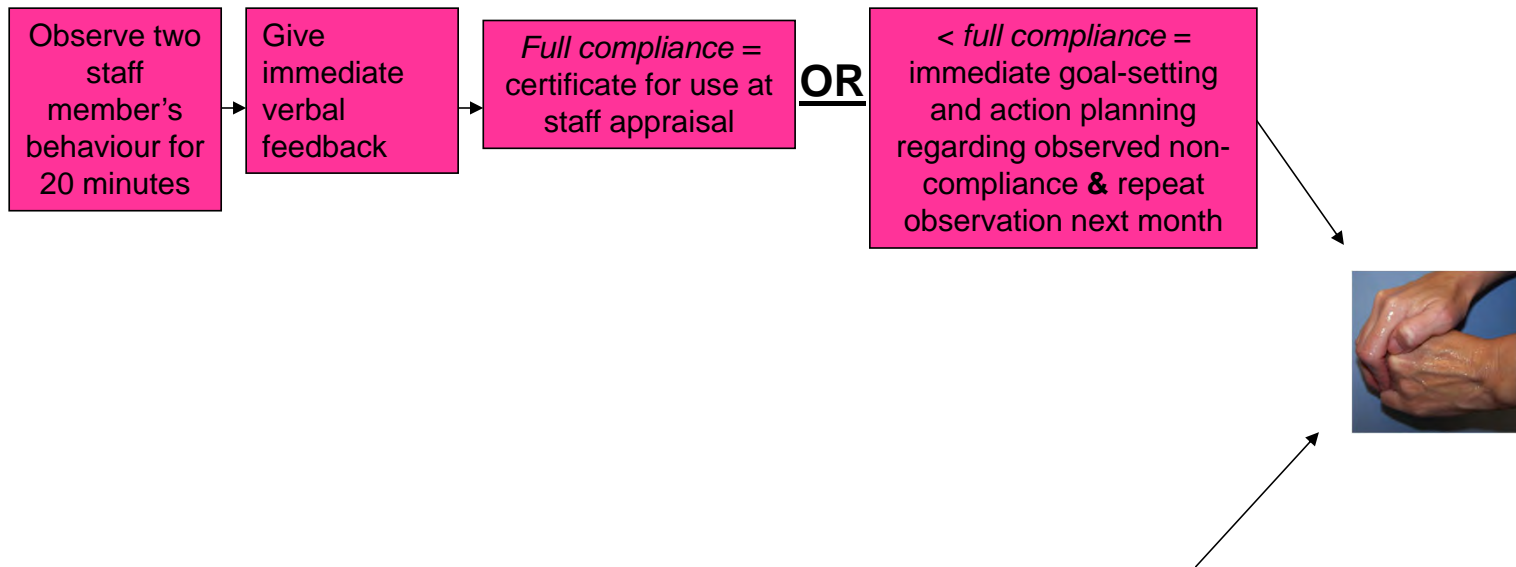
Self-regulation (control) Theory: *Carver & Scheier, 82*



MONTHLY FEEDBACK INTERVENTION


Co-ordinated by infection control team


 = individual level component

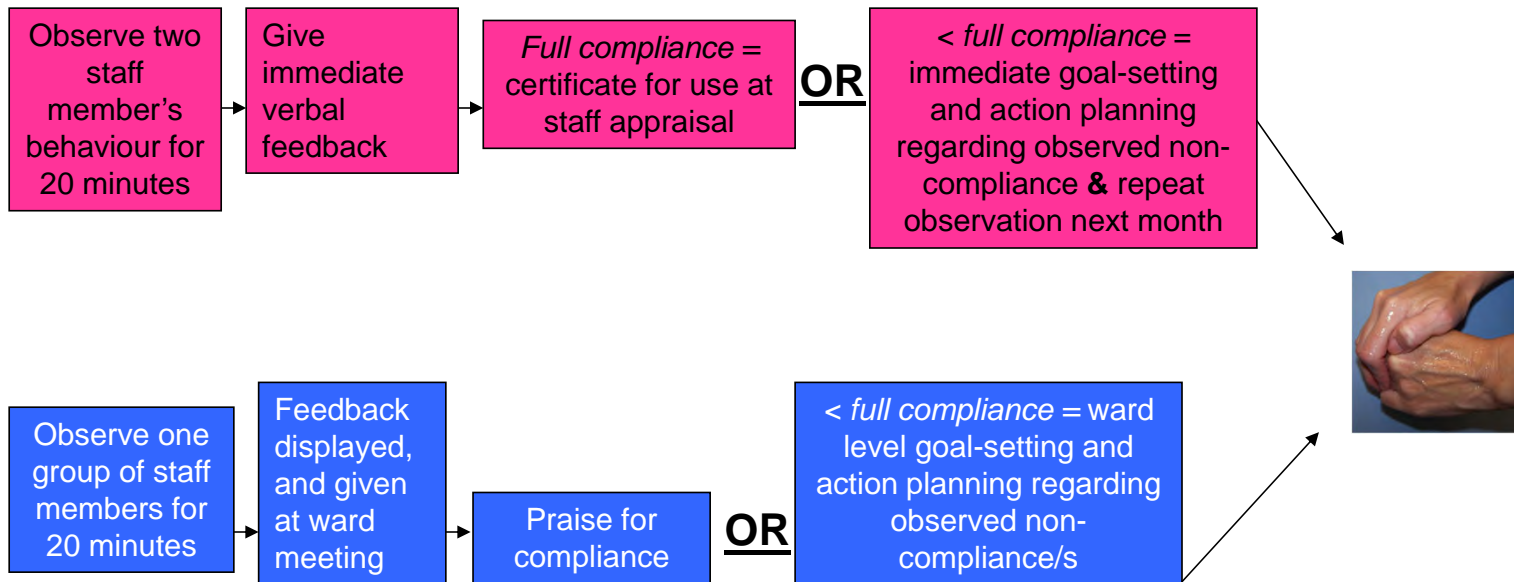


MONTHLY FEEDBACK INTERVENTION

Co-ordinated by infection control team

 = individual level component

 = group level component





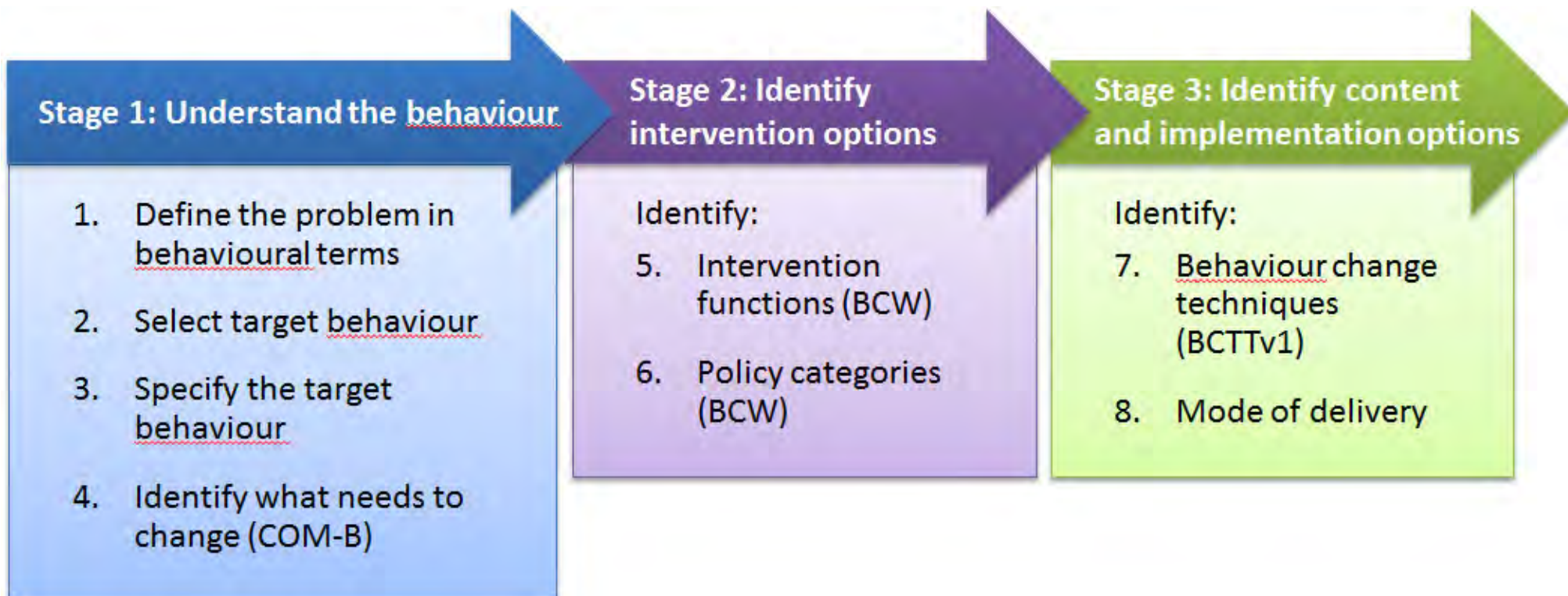
Findings: 60 wards in 16 hospitals in England

- Use of soap and alcohol hand rub tripled from 21.8 to 59.8 ml per patient bed day
- Rates of MRSA bacteraemia and C difficile infection decreased
 - *Stone, Fuller, Savage, Cookson et al, BMJ, 2012*
- Giving 1-1 feedback led to staff being 13-18% more likely to clean their hands
 - *Fuller, Michie, Savage, McAteer et al, PLoS One, 2012*






Designing behaviour change interventions



Selecting relevant interventions: mapping tools

	Intervention functions								
	Education	Persuasion	Incentivisation	Coercion	Training	Restriction	Environmental restructuring	Modelling	Enablement
Physical capability									
Psychological capability									
Physical opportunity									
Social opportunity									
Automatic motivation									
Reflective motivation									

Based on expert consensus





The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions

Susan Michie, DPhil, CPsychol · Michelle Richardson, PhD · Marie Johnston, PhD,
CPsychol · Charles Abraham, DPhil, CPsychol · Jill Francis, PhD, CPsychol ·
Wendy Hardeman, PhD · Martin P. Eccles, MD · James Cane, PhD ·
Caroline E. Wood, PhD

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Abstract

Background CONSORT guidelines recommend the reporting of behavior change interventions using standardised methods of characterising interventions with precise descriptions. **Objectives** To develop a taxonomy of behavior change techniques (BCTs) used in behavior change interventions. **Method** In total, 14 experts rated labels and descriptions of 124 BCTs from six published classifications. Another 18 experts grouped BCTs

into ingredients in an open-ended process. Agreement amongst six researchers on BCT descriptions by BCTs was assessed. 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.

Electronic supplementary material The online version of this article (doi:10.1007/s12160-013-9486-6) contains supplementary material, which is available to authorized users.

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93 item BCT Taxonomy v1, Annals
of Behavioral Medicine, 2013



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 experts involved
- **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



Behaviour change techniques (BCTs)

- Have the *potential* to be the ‘active ingredients’ of an intervention
- Aim to be the smallest components that on their own can bring about change
- Observable and replicable
- Can be used alone or in combination

ann. behav. med. (2013) 46:81–95
DOI 10.1007/s12160-013-9486-6

ORIGINAL ARTICLE

The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions

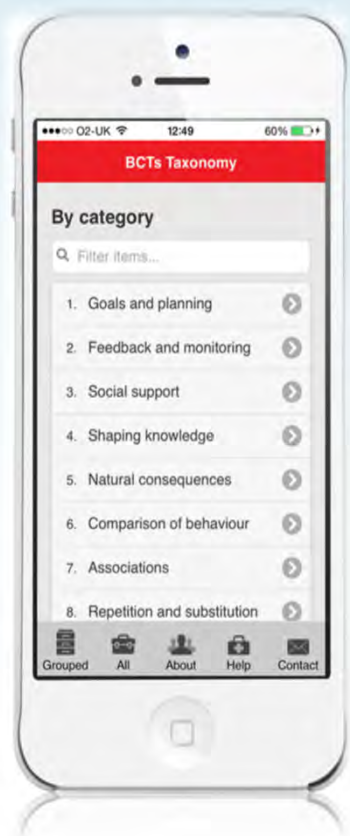
Susan Michie, DPhil, CPsychol • Michelle Richardson, PhD • Marie Johnston, PhD, CPsychol • Charles Abraham, DPhil, CPsychol • Jill Francis, PhD, CPsychol • Wendy Hardeman, PhD • Martin P. Eccles, MD • James Cane, PhD • Caroline E. Wood, PhD

Published online: 20 March 2013

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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



bcts.23.co.uk*



Search for: BCTs*



bcts.23.co.uk*

* You'll need an internet connection to use the app

The screenshot shows the homepage of the BCT Taxonomy v1 Online Training website. At the top left, there is a logo with 'BCT' in a stylized font above 'Taxonomy v1'. To its right is the main title 'Online Training'. On the top right, there are navigation links for 'Home', 'About', and 'Updates'. Below the header, the page is divided into several sections. On the left, there are two vertical panels: the top one is dark grey with the text 'new / untrained users' and a background image of hands using a mouse; the bottom one is teal with the text 'Trained users' and a background image of hands typing on a laptop. On the right side, there is a 'Welcome' section with a red heading. Below the heading is a paragraph of text describing the resource. Underneath this text are two links: 'Login' (underlined in red) and 'New User?'. Below these links are two input fields: 'email' and 'password'. A red 'login' button is positioned below the password field. At the bottom of the page, there is a quote in red: 'Tasks and session materials made a great combination' with large red quotation marks. Below the quote, it says 'Tutorial trainer, Cambridge, UK'.

www.bct-taxonomy.com

Capability

Psychological and/ or physical ability
to enact the behaviour





Motivation

Reflective and automatic mechanisms that activate or inhibit behaviour



Opportunity

Physical and social environments
that enable the behaviour



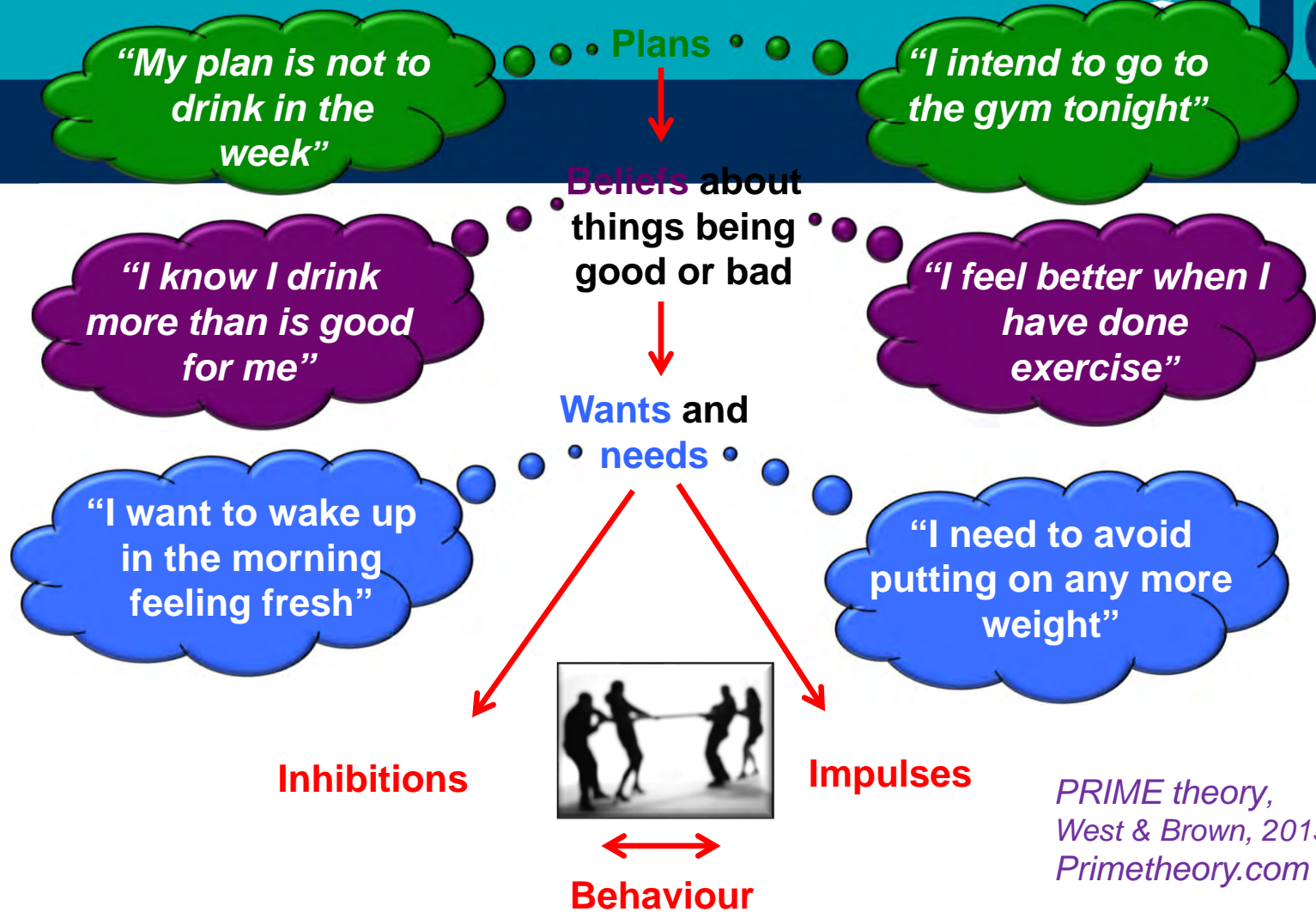
Behaviour is in the moment; at any one moment, there are many choices

- Shall I lie here, watch TV, drink wine, eat popcorn?



- Battle of impulses and inhibitions “in the moment”
 - Put the popcorn out of reach?
 - Put the TV off?
 - Do what I said I’d do – go to the gym?





PRIME theory,
West & Brown, 2013;
Primetheory.com

Effective principles of behaviour change

- Maximise **Capability** to regulate own behaviour
 - Develop relevant skills (e.g. [goal setting](#), [monitoring](#), [feedback](#))
 - Develop specific plans to change
- Maximise **Opportunity** to support self-regulation
 - Elicit social support
 - Avoid social and other cues for current behaviour
 - Change routines and environment
- Increase **Motivation** 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 **Motivation** to continue with the undesired behaviour

NICE National Institute for
Health and Care Excellence

*NICE Guidance for
Behaviour change
(2007; 2014)*



In summary To change behaviour

- Start by understanding the problem
 - Identify the behaviours to change
 - Who, what, where, when
 - Understand the behaviours
 - COM-B
 - **Before** designing the intervention
- Consider the full range of effective interventions and supporting policies
- Select and implement behaviour change techniques



MSc in Behaviour Change, UCL

Full-time, part-time; available as PG Certificate and PG Diploma

Four core modules on behaviour change

Three elective modules selected from 12, topics such as **health, policy, transport, decision-making and energy use.**

Contact Dr Leslie Gutman (Programme Director)

at mscbehaviourchange@ucl.ac.uk

or visit <https://tinyurl.com/cbc-msc-bc>

