What is behaviour change? Towards a working typology

Jake Lomax, PhD[1]

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[1] Senior Associate, The Springfield Centre & Director, 3sd Research. Email: jakelomax@gmail.com

INTRODUCTION

Behaviour change is integral to development programming as well as other efforts to drive social and environmental change. Changing behaviour may be the stated goal of an intervention, such as increased use of condoms or reduced smoking of cigarettes. It may also be that a series of interconnected behaviour changes by multiple sets of actors are required to achieve a different goal. Or we may be interested in researching behaviour change quite separately from any effort to change behaviour.

Whatever our objective, it is useful to have a clear idea of exactly what behaviour change is. Behaviour change, as conceived here, is central to the narrow 'theories of change' that explain how interventions work, as well as to the broader question of how social change happens. Some classification of types of behaviour change might support greater clarity in programme logic, and help us to learn from experience as to what works to achieve a particular behaviour change.

Yet, while we have a taxonomy of strategies for attaining behaviour change (Michie et al 2011), and various typologies of factors affecting the prospects of behaviour change happening (e.g. Michie et al 2011, Fogg 2009, Lomax & Shah 2018), a detailed classification of the behaviour changes themselves is thus far absent from the literature. This is problematic because in order to learn what works in what context, it is useful to be precise about exactly what behaviour change we want to attain. While a detailed taxonomy of behaviour must be the goal, this paper seeks only to contribute a practical working categorisation of behaviour changes drawn from practical experience.

DEFINING BEHAVIOUR CHANGE

In psychology and population health research the behaviour changes of interest tend to be lasting shifts in often-repeated behaviours. In economic impact evaluation, 'behaviour change' often implies continued practice of a particular behaviour in the absence of the external stimuli initially provided to achieve that change. The approach in this paper will be to refer to 'behaviour' as synonymous with 'action', in line with the definition of behaviour that emerged from a pool of experts from across the social sciences:

> "Behaviour was defined as: 'anything a person does in response to internal or external events. Actions may be overt (motor or verbal) and directly measurable or, covert (activities not viewable but involving voluntary muscles) and indirectly measurable; behaviours are physical events that occur in the body and are controlled by the brain'." (Davis et al 2015)

Hence behaviour change here does not imply that the change was achieved through deliberate external efforts and maintained, nor does it restrict behaviours of interest to the like of smoking and hand washing. The behaviour changes included here include those found in everyday life, not only those behaviours that are subject to interventions designed to adjust them. They also include behaviour changes related to actions of governments, firms, organisations, households, individuals or any other actor with agency.

In general, we are interested in analysing behaviour changes that pertain to repeated actions, no matter whether they are often or infrequently repeated. Such actions are situated as part of a system of interconnected actions, where behaviour changes have knock-on consequences for other actors and actions in the system. However the definition also includes behaviour changes that pertain to one-off actions that are not repeated within a meaningful timescale.

As such the definition of behaviour change used here is defined, quite broadly, as: *an actor doing something new or different*. For a given action, that something new or different may pertain to *who does what to what using what*. This is explained in the next section.

TYPES OF BEHAVIOUR CHANGE

The typology developed here builds on the three main categories of in the Mechanisms of Social Change (MOSC) framework (Lomax 2018): actors, actions and resources. Behaviour changes that change the overall nature of the set of actors performing an action are grouped together under the heading 'who'. Behaviour changes related to the nature of the action itself – how it is performed – are grouped together under the heading 'does what'. Finally, behaviour changes related to the resources used in the action are grouped together under the heading 'to what, using what'. So the brief formulation of behaviour change used here (a change in *who does what to what using what*) implies change in one or more of *nature of the action*, *nature of the actor* performing the action, and the *nature of the resources* used to perform the action.

The table below sets out the working typology of behaviour change. [2]

Who…		
Start/Stop (actor) changes		**[who does]**
S1	Start	Start doing an action for the first time
S2	Stop	Stop doing an action
S3	Recommence	Recommence an action that had been done previously and stopped.
S4	*Continue*	Continue doing an action – especially new actions, actions subject to shock, etc.
…does what…		
Action changes		**[does what] this is a change to the existing actions undertaken**
A1	Δ How	Do the action **differently**, new techniques, new business models. This might be a change in the way the input is processed, or the nature of the exchange.
A2	Δ How much	Decide to invest to increase the **scale** at which the activity is undertaken, or reduce investment to decrease the scale.
A3	Δ How often	**Do action more frequently** **Do action less frequently** This might be an absolute number, or a proportion of times action is done. *Smoking less, washing hands more often, growing crops twice a year instead of once.*
A4	Δ When	Do the action **earlier** than previously. Do the action **later** than previously. This is related to timing of the action and production of output, rather than timing of inputs (see below)
A5	Δ With whom	Change actors involved in exchange actions *Sell to different type of buyer, buy from different type of supplier, etc.*
A6	*Δ Where*	**Start doing** an existing action in a **new location** **Stop doing** an action (that is continued elsewhere) in a **current location** This is doing the action somewhere else, in more/fewer areas, in remote areas, etc.
A7	*Δ With what*	Do the action with a **different type [not quality] of resource,** i.e. diversification; more profitable crops; etc. Buy and sell different products, produce different products. This may be captured in S1, depending how the action is defined.
…to what using what.		
Resource changes		**[to what, using what]** – this is a change in the input resources, whether **primary** (the main resource being produced or exchanged) or **secondary** resources (other necessary resource inputs). There are often interrelationships between these resource changes – e.g. better quality has a higher price, etc.
R1	Δ QQRT **primary** or **secondary** resources	**Quality improvement** – actor produces, allocates, or accesses better input resources **Quality decline** – actor produces, allocates, or accesses worse input resources **Quantity improvement** – actor produces, allocates, or accesses more input resources **Quantity decline** – actor produces, allocates, or accesses fewer input resources **Rate improvement** – input resources are more plentiful due to lower price [accessed resources] or greater yield [own produced resources] **Rate decline** – input resources are more scarce due to higher price [accessed resources] or lower yield [own produced resources] **Timing improvement** – input resources are increasingly available when needed due to improved market availability [accessed resources] or improved timing of production [own produced resources] **Timing decline** – input resources are increasingly unavailable when needed due to decline in market availability [accessed resources] or worsened timing of production [own produced resources]

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[2] There are a lot of W's in this typology. Annex 1 sets out the origin of this W-based framing.

The underlined types in rows S4, A6 and A7 represent those changes that have been grouped provisionally here and may also in some cases be classified elsewhere. The types of behaviour change are not mutually exclusive. One behaviour change may fit in multiple categories. This is because what we might consider a single behaviour change often affects multiple actions, and it is challenging – and often unnecessary – to unpick each of these. Where there is a clear single best fit, it is useful to categorise only as that type. Where it is not clear, it is useful to recognise all the types that apply to a given behaviour change. This is so that when comparing superficially different behaviour changes we may improve our chances of comparing like with like.

The remainder of this section provides additional detail against each of the types specified in the table above. This provides more detailed rationale for choice of the types and highlights some possible inconsistences to be addressed in further work.

ACTORS: Who

S1 & S2: It is relatively intuitive that actors may **start** doing something, or may **stop** doing something. But *start* also includes actions that are, by definition, one-off and so it may be counter-intuitive that they fall within *start* – with obvious examples including committing suicide, drowning, giving birth to your first child and so on. There are similar difficulties to application of *stop* to one-off events. *Start* does not necessarily imply the commencement of a process, it refers to an actor's adoption of a behaviour, or performance of an action, that is new to them. It is important to note there will be in some cases some inevitable subjectivity to the definition of stop – how long do you need to have not done something before you are considered to have stopped?

The other two categories in this section require some more explanation.

S3: Recommence is an important sub-category of *start*, because in the case of recommencement, there will be significant prior knowledge of the activity, including – probably – the outcomes of the activity. There may also be important habitual elements to a decision to recommence that distinguish it from starting something for the first time.

S4: Continue is also included in the table even though it is not according to our definition a type of behaviour change. If someone continues to smoke having started this is not, in principle, a behaviour change. However, continuation is of particular interest – especially where resources introduced to change behaviour have been taken away, or where resources needed as inputs for an ongoing action have been taken away. For instance, mosquito net use may start on receipt of a free net, but does it continue the next year if the bed net has degraded and become unusable? Or, do farmers continue farming in a region when average rainfall has declined season after season?

ACTION: ...does what…

A1: Change in How is a broad category that is a shift in the way the action is performed. For instance, a farmer places seeds at regular intervals instead of scattering them, or someone shifts from smoking alone to smoking socially, or investing on the basis of financial returns only to investing with some view on environmental responsibility. The shift should not be so significant that it is more usefully considered to be *stopping* one action and *starting* a different action. The shift may incorporate other components of *does what*, as well as also entailing use of different resources, but *how* is likely to be the best categorisation for behaviour changes primarily related to the way in which the action is performed.

A2: Change in How Much reflects the scale at which an actor performs an action. For instance, if a farmer shifted from growing tomatoes on one fifth of her land to growing tomatoes on all of her land, this would be a change in scale. Here, as in other behaviour changes, there would be a resource implication to the behaviour change – more tomato seeds would be needed, more land would be needed as inputs, but these are secondary consequences of the decision to grow more tomatoes.

A3: Change in How Often is in some cases closely related to how much – smoking for example is measured in cigarettes per day. But there is often an important distinction, especially with regard to behaviours where

the proportion relative to opportunities is important – such as handwashing instances as a proportion of bathroom visits, or number of crop harvests per season.

A4: Change in When is an important factor especially related to timing of the output of an action relative to when that output is needed. For example selling crops earlier or later, before or after the season when there is a glut in production that reduces prices.

A5: Change in With Whom the action is performed is often important. We may be interested in encouraging people to access health information from medical professionals rather than peer groups, or encouraging ex-offenders to socialise with groups from a workplace rather than groups who related to activities that led to their incarceration.

Two more factors are not so clearly part of the *does what* section because they point to definitional questions about the original action.

A6: Change in Where is often an important behaviour change – for example development interventions sometimes seek a provider of goods or services start selling products to new areas, such that more people may benefit from those goods and services. In some ways this may be more closely related to who is doing the action – depending on the geographical remit of the original definition of action. But it is included within *does what* because, like the *recommence* there is significant experiential knowledge of the action and its outcomes, even if the context is new.

A7: Change in With What also points to definitional questions about the original action, and it could reasonably be placed within either Actors or Resources. Here we are referring to a shift in the type of primary or secondary resources. If it is just a change in the quality of resource rather than the type, then it will be considered instead a resource behaviour change. But if the change in type of resource is sufficient that it now falls out of the definition of the action we are looking at, then it will be considered instead an actor behaviour change. Both of these are subjective, and there are grey areas. For instance, if the action is defined narrowly around a particular resource input (e.g. tomato farming) then a shift to grow courgettes instead of tomatoes may mean we consider the actor to have *stopped.* But if the original action is horticultural farming, growing courgettes remains part of the action.

RESOURCES: to what, using what

R1: Change in Primary or Secondary Resources Used. There is only one type of resource-based behaviour change presented, although it may apply to either the primary resource '(to what') or to a secondary resource ('using what'). This is a change, be it positive or negative, in the quality, quantity, rate or timing (QQRT) of the resource in question. This 'QQRT' formulation for assessing resources is explained in more detail in Lomax (2018).

CONCLUSION

Stronger theorisation about what causes behaviour change may be supported through deeper understanding of the various forms of behaviour change, alongside the various causal factors that determine propensity to change behaviour. This paper addresses the former, setting out a provisional typology of behaviour change based on actors, resources and actions. The latter has been addressed previously with a typology of the incentive and capacity determinants of behaviour change (Lomax & Shah 2018).

There are at least three areas for further work. One is to analyse theoretically, as well as empirically, the relationship between types of behaviour change and the causal factors affecting behaviour change. A second is to consider the nature of the underlying action that is subject to behaviour change, and integrate a more detailed understanding of the relationship between types of underlying action and types of behaviour change. For instance, examining variation in how often the action is performed, or whether the action is a process or is more instantaneous. A third, related to both of the above, is to further interrogate and refine the typology presented here through application and testing.

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ANNEX 1: ARISTOTLE AND LOTS OF W'S

The five W's, or five W's and one H (who, what, when, where, why, and how) are a commonly used framing for understanding human behaviour and for representation of actions in journalism. Rudyard Kipling (1902) produced what may be the best-known formulation:

> "I keep six honest serving-men
> (They taught me all I knew);
> Their names are What and Why and When
> And How and Where and Who."

The terms originate from Aristotle's Nicomachean Ethics, who was also interested in the resources used for the action – *with what* (cited in Sloan 2010, text in square parentheses and emphasis added):

> "Therefore it is not a pointless endeavour to divide these circumstances by kind and number: (1) the **who**, (2) the **what**, (3) around what place [**where**] or (4) in which time something happens [**when**], and sometimes (5) **with what**, such as an instrument, (6) for the sake of what [**why**], such as saving a life, and (7) the **how**, such as gently or violently."

This same set of concepts that go back to Aristotle to describe important characteristics of human action serve our purposes here in forming the basis for a typology of behaviour change, and the typology here broadly corresponds to Aristotle's conception. However, 'why' is not included in this typology, as we are focusing on the *nature* of changes in behaviour rather than their *explanation*. A change in rationale for doing something that does not otherwise change what is done is certainly interesting, but it would not be considered a behaviour change. Further, unlike Aristotle, we are looking at a specific behaviour change made with respect to a specific action or set of actions. Hence we already know 'what', and so we group together within 'what' a range of descriptive factors around the nature of the action, including where, when, and how.