International Workshop on New Computationally-Enabled Theoretical Models to Support Health Behaviour Change and Maintenance

October 16-17, 2012, Brussels, Belgium

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Extending behaviour theory

- What do you think are the 'necessary ingredients' to develop models of health-related behaviour that can account for momentary, short-term and long-term behaviour change?

My experience is not in health-related behaviour specifically, but rather in the application of design methods to 'behaviour change' problems. The main project at present is working with a startup called CarbonCulture which aims to reduce the energy use and carbon footprints of workplaces through behaviour change, particularly through new forms of visualisation, and better ways of engaging staff in the short- and longer term. So, although the focus of the project is a different field entirely, I can offer what we have learned so far in terms of modelling behaviour and short- and longer term behaviour change.

Whether the insights are applicable in a health domain, I don't know, but there are some parallels—for example, situations often involve behaviours whose impact may only be felt sometime in the future rather than immediately, the pervasive 'culture' and others' behaviour may be a significant determinant of behaviour, and the 'invisible' nature of many health-related behaviours in the moment has some parallels with the invisibility of energy.

Two important 'ingredients' which seem to be relevant, from our experience, include:

Less focus on attitudes, and more on understanding (and influencing) context

Typically surveys about attitudes towards the environment have similar kinds of findings as many of those around health. People say they care about the environment, just as they say they care about their health. They may have strong attitudes in favour of sustainable behaviour / healthy behaviour. They are used to campaigns telling them to care about all this. But in everyday 'choice' situations, it's often the easiest or first *satisficing* choice that is made. For example: someone (says) she cares about the environment. In surveys she answers that she tries to recycle as much of her household waste as possible, and so on. She goes to a meeting where coffee is served in paper cups. If there isn't a paper recycling bin in the room, that's easy to see, and unless her attitude towards recycling is incredibly dominant, she is unlikely to take the cup with her to recycle it elsewhere. She will put it in a general waste bin, or leave it on the table (particularly if that's what everyone else is doing). Parallels with health-related behaviours might include choosing fruit as a snack rather than a chocolate bar, taking an escalator rather than stairs, and so on.

These are minor behaviours rather than large-scale life changes, but it's this sort of pattern that we see with a lot of everyday interaction with environments. The context—what facilities and information are available and salient *at the point when they are needed*—to a large extent determines what happens. The *A-B-C* model (e.g. Guagnano et al, 1995; Stern, 2000) recognises this, also highlighting how attitude can determine behaviour in some situations where it is strongly held or the context does not provide strong cues.

So, from the point of view of a designer, changing contexts is one of the main things we can do to influence behaviour, and if done in a permanent way, the changes could be maintained in the longer term.

Recognition of behavioural heuristics as ecologically rational contextual problem-solving

An important point in the above is that people's contextual choices, even if not best for themselves (e.g. with poor diet choices) or others are not necessarily 'irrational' in the way that much of the behavioural economics discourse implies. In the contexts concerned, behaving in a way which 'solves' your immediate problem—I'm

hungry so I will eat a chocolate bar, because it's the first thing to hand—is what Todd & Gigerenzer (2012) call *ecological rationality*, i.e., this kind of bounded rationality is often the most efficient way to solve problems in everyday life. Comparing the health benefits of different kinds of food, and seeking out an alternative to the chocolate bar, does not provide an efficient solution if you frame your problem as being 'stop me being hungry, right now' and the chocolate is the easiest choice.

By this view—which is only a model, a simplification like any other—people follow *heuristics*, rules of thumb developed through both experience, our mental models of situations, and what we perceive we are able to do in them. As behaviour change interventionists, we could concentrate on trying to educate people not to make certain choices, or we could design contexts so that the choices which are available, and salient, and easy, are those which lead to a better outcome. Something which I'm trying to explore with energy use, but could be applied in health-related contexts, is how best to uncover the (often unspoken) heuristics people may be following in many everyday interactions with the systems around them, and matching these to design strategies which will specifically address them.

Measurement of behaviour

- Are some types or magnitudes of incentives (financial, game rewards, social feedback, etc.) far more effective than others in supporting engagement?

In our (energy / sustainability-related) CarbonCulture dashboard, we've found two of the most effective factors in continued engagement (over the course of 3-4 months) have been 1) enough of people's colleagues signing up that there is a critical mass of users, who can see the actions everyone else is taking via a 'social proof' ticker / feed in the sidebar; and 2) a phased launch of new features and 'apps' over the course of the pilot programme, so that it's always 'worth' someone signing in, since there might be a new feature of interest.

Rather than launching every feature at once, the phased programme means that many users try out one feature, then the next when it's launched, and so on. Whether this kind of engagement is transposable to different circumstances in the health domain, I don't know.

Evaluation

- What are the methodologies that should be used to evaluate behaviour change systems using new BC&M models? Are there metrics the field should expect to see in publications that will enable incremental progress and major breakthroughs?

This is an interesting question because it raises the possibility of new kinds of metrics. It may be that in some situations, what would be useful is not necessarily just a quantitative measure of 'how much behaviour change has occurred' as a method of evaluation, but a way of representing (for example) different patterns of behaviour by people using the 'system' (whatever that is), with the potential consequences for health correlated. Large amounts of data gathered by, for example, internet of things-like connected devices (smart appliances, smart homes, smart clothes) could reveal clusters of behavioural patterns which would then enable a more systems / cybernetics-type analysis, taking into account multiple levels of feedback loops, second-order dynamics, and so on.

Another aspect which has become clear with our CarbonCulture project is that in some cases, while we might assume the metric that matters is 'how much behaviour change has occurred?', in practice the organisations running the interventions may actually find it more useful (initially at least) to use metrics around degrees and types of engagement, rather than the ultimate behaviour change outcome. Developing a system which 'works' in terms of engaging the public over time is probably a valuable (temporary) end in itself, since what's learned can then be applied more directly to the specific kinds of behaviour change of interest.

General question

- What could participants in the meeting collectively do before, during, and after the meeting to significantly impact the field of health behaviour change and maintenance? Be as concrete as you can,

and think boldly.

This process of asking questions to elicit the participants' (often quite different) perspectives is, I think, very useful. Reading others' responses has helped me to widen the scope of what I perceived to be the important issues in health-related behaviour change, and has also encouraged me to evaluate whether there are transposable lessons or insights from the (superficially quite different) field in which I'm doing research.

So perhaps my suggestion would be to look outside of 'health-related behaviour change' as a field, to other areas of research and practice where people are interacting with systems and environments, and try to draw potential parallels and find analogous situations. What we learn from other contexts may enable new, useful perspectives in the health domain.

References

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