

Behavioural nudge theory: A tool to improve safety behaviour

Nudge theory represents an interesting, but by no means new, combination of different theories of psychology and economics that attempt to predict human behaviour. Professor Craig Jackson reports.

Introduction

Nudge theory is often described as a multidisciplinary approach to the applied science of human behaviour. In essence, nudge theory suggests that positive reinforcement of behaviours, coupled with hints and suggestions, can (subconsciously) influence motivation, collaboration, and decision processes. What is more is that such nudges towards the “right” behaviour can often be more effective, and less prone to resistance from groups or individuals, than direct instruction or overt enforcement. The key to successful nudging often involves the individual being unaware that their thoughts, decisions and subsequent behaviours are being influenced by an external force.

Some critics describe nudge theory as a “social instrument” that has many potential negative applications that could be abused. A wider question concerns the ethics of such manipulations, and whether nudging is another form of covert-coercion and libertarian paternalism, regardless of the goodness of the underlying motives. Ethics aside, employers and organisations have legal duties and responsibilities for health and safety to uphold, and it could be argued that refraining from using a nudge would therefore be unethical, too. For the purpose of this article, the viewpoint is taken that to refrain from nudging on moral grounds would be tantamount to unethical practice when issues of safety are at stake.

Although coming into prominence in the late 2000s following Thaler and Sunstein’s *Nudge: Improving Decisions About Health, Wealth, and Happiness* (2008), nudge theory had previously been in existence, in terms of books and guides aimed at amateur investors in the form of “behavioural finance”. However, Thaler and Sunstein’s book paved the way for nudge theory to be more widely adopted and popularised, and to be applied to the fields of public health, social and political engineering, crime reduction and safety. A synthesis of economics and psychology has been investigated by Sapsford, Phythian-Adams and Apps (2009) for any application that may result in sustainable safety improvements. In the fields of health and safety, the ultimate application of nudge theory could be to answer the eternal question of the Health and Safety Executive (HSE) professionals: “People in organisations know what safety behaviour is, and they know what unsafe behaviours are — so why do they continually err towards risky behaviours and expose themselves to hazards?” The answer to that lies in bounded rationality, where decisions made are often counter-intuitive for health and safety, but seem to be the right or best choices at the time.

Complex humans

Answering the above question involves some understanding of both cognitive psychology and social psychology, and how a complex mix of thought processes, biases, influences, attributions, personality type and the impact of rewards and punishment all combine to result in human behaviour, which might be described at the best of times as being illogical and likely to lead to harm. The likelihood of such illogical unsafe choices and behaviours can be more likely when we involve groups and collaborative efforts; the acknowledgement that people often behave in public in a way that is vastly different from when they are in private. Herd mentality often results in individuals making unsafe choices and decisions, even though they know they are wrong, merely because they do not wish to stray from the views of the group. Some of the motivators behind behaviours can be very straightforward — if the person giving instructions to a subordinate is disliked, it may be natural for the

subordinate to want to resist complying with such instructions — either on an automatic/instinctive level, or on a more considered and rationalised decision-making plane.

In short, a successful nudge could be any aspect of the environment that influences a desired behaviour, and makes that action more likely to occur. Common examples of nudges include the use of black and yellow markings to indicate hazards (and thereby influence cautious movements from individuals); ropes used in banks to direct the flow of customers; and three-coloured traffic-light systems that are used to indicate priority or importance of information. In fact, colour-coding is possibly one of the oldest workplace nudges; “green” is for recycling or healthy options; “red” is for danger; and “yellow” is for caution. Shapes, too, provide a continuous nudge, with an obvious example being the Highway Code — triangular traffic signs are warnings, while circular signs are rules, and these “shape-colour rules” become adopted by us throughout life.

Subconscious “choices”

As well as being ubiquitous and keeping a consistent presence in the context of the “rules” of shapes and colours we learn throughout life, nudges can be cost-effective and work best when the recipient of the nudge believes the decision they have “made” has been of their own volition. Further, nudges can be even more effective if the recipient of the nudge makes a decision, perhaps without even being aware they have made a decision, ie “It is just obvious that refuse for recycling belongs in the green bin.”

A nudge below the radar of conscious realisation is the best nudge of all, and this is where “choice architecture” emerges; choice architecture is the possible array of potential decisions or behaviours that individuals or groups can engage in. The assortment of confectionary products in a shop is not a coincidence, and is often a hotly contested point of sale with different confectioners wanting their products in that sweet-spot that seems to catch the potential buyer’s eye. Shelving, mirrors, lighting and smells are all used to nudge the customer towards the target product. Intuitively then, as something that is proven to work in retail “science”, the nudge is surely something that has massive potential in the field of workplace safety.

How can people be influenced or compelled to make the right decisions? Ergonomists and systems designers have a long-standing relationship with nudges, and have relied on the users’ mental shortcuts (known as “availability heuristics” and “representative heuristics”, which are both unreliable and an error-ridden basis of poor decisions) and mental models to shape the design and (safety) function of interfaces and equipment.

The fly image that is baked in the ceramic of urinals at Amsterdam Schiphol airport is the most commonly given example of a sub-conscious nudge providing a cost-effect solution. Although sounding like an apocryphal story, Jos van Bedoff noticed during his military service in the 1960s that an army urinal with a small dot on it was much cleaner than the other urinals. This idea was implemented in urinals at Schiphol airport in the 1980s and, after installation, spillage and subsequent cleaning costs were reduced by 80% following the subconscious targeting of the fly by urinal users.

Unintentional mistakes and deliberate violations

Nudges can be used in a variety of ways to tackle a variety of failings, including both the deliberate and conscious-safety violations (associated with reflective decision-making), as well as the sub-conscious family of unintentional errors (automatic decision-making). Sub-conscious “under the radar” nudges have the potential to address both of these types of failings, but perhaps the deliberate type of violation may be the hardest to address. Nudges can be used in workplaces to:

- prompt safe practice and actions

- encourage the safe way to become the “only way”
- make the safest choice the default choice
- encourage workers to assess if they have the correct resources
- reduce complacency of safety attitudes
- back up specific on-going campaigns (eg hand-washing; driver safety)
- encourage worker participation in safety programmes
- increase awareness of surroundings and (hazardous) situations
- gain managerial commitment to safety initiatives.

Nudges also benefit from being so subtle that they are not subject to the negative reception that overt health and safety messages often receive from individuals, due to the negative perceptions of the “elf ‘n’ safety” culture.

Limited applications

Because deliberate safety violations can occur for a wide variety of reasons and for different types of gain and benefit, there may not be a simple one-nudge-fix-all approach that can be used, especially concerning attitudes, prejudices, bigotry and curious motives that can underlie such actions. Such pro-safety violation attitudes can be deeply ingrained within individuals, while some nudges are only fleeting in their effect, so their ability to tackle deeply held “recidivist” unsafe behaviours could be challenged.

In addition, there may be some occasions when workforces or individuals, once they realise they have been the “victims” of nudges and manipulation, may engage in the deliberate ignoring of such nudges as a form of defiance. These unwanted outcomes can be referred to as the “revenge effects” of any nudge that goes wrong.

Another potential negative aspect of safety nudges could be where the nudge stimulus may distract the worker from what they were doing, to the extent that an accident may occur. Although sounding fanciful, such possible negative outcomes need to be assessed alongside the potential benefits such nudges may provide in relation to any specific hazard. The desensitisation and habituation of workforces to nudges might also mean that nudges need an occasional refresher in order to have the worker continue to attenuate to them (even subconsciously).

Summary

Nudging has the potential to change behaviour and improve safety where regulation and enforcement often fail. The House of Lords Science and Technology Committee presented findings in 2011 following an evidence-gathering exercise about the potential of behavioural change. They acknowledged a clear additional role for non-regulatory input in the area (such as nudges and selective choice architecture) and, although expressing caution about a lack of reliable scientific evidence at the time, an open mind seems to have been reserved by the committee. Nudging and the architecture of choice are simply additional tools for safety managers to use in order to change behavioural actions, but the real success of them will materialise when the nudge is seen as second nature. In some areas of proactive safety practice in certain sectors, thankfully that moment has already arrived. What is needed now are good studies and reliable intervention research that will allow the tangible benefits of nudges to be evaluated objectively.

References

- House of Lords Science and Technology Committee (2011): *Second Report — Behaviour Change*
- *Behavioural Economics: A Review of the Literature and Proposals for Further Research in the Context of Workplace Health and Safety*, Sapsford D, Phythian-Adams S L, Apps E, HSE Books, 2009
- *Nudge: Improving Decisions about Health, Wealth, and Happiness*, Thaler R, Sunstein C, Yale University Press, 2008