NUDGING IN THE WORKPLACE

Facilitating desirable behaviour by changing the environment

Tina Venema and Laurens van Gestel*

1 Background

In 2008, behavioural economist Richard Thaler and lawyer Cass Sunstein published their book *Nudge: Improving Decisions about Health, Wealth, and Happiness*. Nudging was introduced as a *behaviour change tool* that acknowledges that people have bounded rationality and therefore cannot be expected to carefully deliberate all their decisions. To be more precise, nudges are changes to the environment in which people are presented with choice options (i.e., choice architecture) designed to steer them towards a particular ‘sensible’ choice, without restricting alternative options or changing financial incentives (Thaler & Sunstein, 2008). For example, footprints towards the staircase might decrease elevator use in favour of the stairs by making them more salient (Van Nieuw-Amerongen, Kremers, De Vries, & Kok, 2011), or employees could be automatically enrolled in a retirement savings plan set up by their employer when signing their contract so they do not miss out due to procrastination (Thaler & Bernartzi, 2004). Nudge interventions come in all shapes and sizes, but one thing they all have in common is that they capitalize on psychological processes that guide our interactions with our environment.

To explain how choice architecture can influence decisions, Thaler and Sunstein rely on the dual systems theory, which later received much attention outside of academia with Kahneman’s book *Thinking, Fast and Slow* (Kahneman, 2011). This theory posits that there are two systems that govern all human behavioural decision-making (see also Chapter 18 Behavioural Economics Theory). One system is quick, automatic, intuitive, unconscious, and efficient (system 1). The other system is slow, deliberate, reasoned, conscious, and effortful (system 2). Albeit thorough, the second system is mentally taxing and people cannot use it for every decision. Imagine grocery shopping while meticulously deliberating about every product. In most cases, the amount of information to incorporate in a decision would simply be overwhelming (Schwartz & Ward, 2004). Instead, system 1 is proposed as the default operating modus, with which the majority of decisions are made (Epstein, 2003; Thompson, 2009; Thompson, Turner, & Pennycook, 2011). In this modus, people might often unintentionally use ‘rules of thumb’, also called heuristics, to guide their decisions. To illustrate, tourists might assume that, after disembarking from a train, the direction in which the majority of people are walking must be where the exit is located. However, due to these (mental) shortcuts and impulses, they may also end up making

*Corresponding author: a.g.venema@psy.au.dk

decisions that would have been different when having had the opportunity to consider them carefully (e.g., Baumeister, Sparks, Stillman, & Vohs, 2008; Evans, 2003; Lichtenstein & Slovic, 2006). Small changes to the choice architecture that make use of these shortcuts can therefore change the outcome of people's choices considerably (Dolan et al., 2012). There are abundant examples of this type of influence, and marketers have long discovered this presentation tactic. For example, the placing of premium brands at eye level in supermarkets to increase profits and the automatic renewal of magazine subscriptions ensuring a steady customer base are just two common manifestations. Thaler and Sunstein (2008) argued that since the environment has such a great influence on our decisions, policy makers should be aware of this influence and use it to help people make sensible decisions.

For many policy makers, the appeal of nudges as policy tools stems primarily from the fact that they are a softer alternative to strict rules and regulations (e.g., Halpern, 2015). For years, the two most common ways to influence the behaviour of the public were either prohibition by law, thereby removing the decision from the public, or education to provide the public with more information to improve their decisions (Bemelmans-Videc, Rist, & Vedung, 2011; Christen & Lægheid, 2002).¹ Prohibition is often not the preferred policy tool (in democratic societies) because it is likely to meet resistance and requires continuous enforcement. An example of this is the instalment of smoking bans in public spaces (Bell, McCullough, Salmon, & Bell, 2010). Education campaigns are more popular, because they leave the freedom of choice intact. However, the effectiveness to change behaviour has been limited, making it not always a cost-effective policy tool either. For example, people can learn that women need on average 2,000 kilocalories a day, and men 2,500, to maintain their current weight. Note that for this knowledge to result in actual behaviour change, people need to read labels in the supermarket and monitor their intake, which has shown to be a quite effortful barrier (Teixeira et al., 2015). The enthusiasm for nudges can largely be explained because Thaler and Sunstein made a compelling case why nudges overcome all of these issues: they are easy and cheap to implement, while leaving alternative choices intact (e.g., OECD, 2017). To illustrate, when the environment is designed in such a way that low-calorie food products are more easily accessible than high-calorie products, people might make better choices even without knowledge about the recommended number of calories.

On a political spectrum, nudges are considered as libertarian paternalism. Paternalism, because it is based on the idea that certain choices are better than others to improve well-being in the long run. This is what distinguishes nudges from marketing 'tricks' – the intention behind the design. One of the underlying assumptions of nudging is that people are in agreement with the goals represented by these nudge interventions, that is, they have provided *hypothetical consent* (see also Van de Veer, 1986). Therefore, it rests on the premise that people generally would like to be healthy, good to the environment, and good to other people (Thaler & Sunstein, 2008). The 'libertarian' aspect requires that the 'desirable' choices are not enforced but rather suggested; alternative options should still be attainable. However, nudges have not invoked only praise; nudge critics from diverse academic fields (e.g., philosophy and governmental science) fear that people will be manipulated because they argue that nudges mostly rely on processes that people are not aware of (Bovens, 2009; Hansen & Jespersen, 2013; Hertwig & Ryall, 2019; Selinger & Whyte, 2011). It has been suggested that nudges limit people's autonomy to evaluate, deliberate, and choose for themselves (e.g., Gigerenzer, 2015; Glod, 2015; Hausman & Welch, 2010) and that nudges therefore have no place in public policy (e.g., Leggett, 2014). While heated debates are fought out through editorial commentary and review articles (e.g., Huang & Baum, 2012; Welch, 2013), it is important to note that the arguments on both sides of the debate are primarily based on *theoretical* principles and concerns. What is more, an important, but overlooked, assumption held by both proponents and opponents of nudging is that nudges are indeed *effective* in steering behaviour.

1.1 Empirical research on nudges

Now, more than a decade after the introduction of nudges, a handful of meta-analyses and systematic reviews have appeared in the nudge literature that bring some nuance to the debate (e.g., Arno & Thomas, 2016; Bucher et al., 2016; Cadario & Chandon, 2020; Hummel & Maedche, 2019; Szaszi, Palinkas, Palfi, Szollosi, & Aczel, 2018). Although many meta-analyses focus on one specific type of nudge or one particular behavioural domain (e.g., healthy eating, sustainability, financial decision-making, etc.), their conclusions align with those that take a broader scope. For example, Hummel and Maedche (2019) cover multiple behavioural domains and multiple types of nudges, including 100 empirical articles in their meta-analysis. They found that 62% of nudging interventions resulted in a statistically significant change in behaviour. Across all included studies, the average percentual change on the outcome measure (e.g., the number of calories consumed or the number of participants that selected a particular option) between a nudge intervention group and a control group was 21%. Most meta-analyses show that even though the majority of nudge interventions work, the effect sizes are small, suggesting they are not effective for everyone (Olejnuk & Algina, 2000).

Nudge researchers and policy makers should be aware that nudge interventions, in terms of effectiveness, target mainly ‘the inconsistent choosers’ (Goldin, 2015): those individuals who do not have strong and specific *a priori* preferences (based on their goals and values) and who are therefore more likely to be affected by the choice architecture. The few empirical articles that looked into moderators of the effectiveness of nudge interventions found that strong attitudes, habits, and intentions mitigate the behavioural change due to the nudge (e.g., Murtagh et al., 2013; Trudel, Murray, Kim, & Chen, 2015; Venema, Kroese, De Vet, & De Ridder, 2019; Venema, Kroese, Verplanken, & De Ridder, 2020; Vetter & Kutzner, 2016). For example, thirsty participants could not be steered towards a smaller – and less caloric – portion size of soda with a position nudge (Venema et al., 2019). Nor was an opt-out default nudge that automatically transferred people’s tax refunds into a savings account effective for people who already had plans to spend their refunds (Bronchetti, Dee, Huffinan, & Magenheimer, 2013). Supermarket customers who habitually bought white bread simply went looking for their preferred product when the bread section was rearranged to make whole wheat bread more salient (De Wijk et al., 2016). These examples demonstrate that when people hold strong and specific nudge-*incongruent* preferences (i.e., a preference for an alternative option), nudges are unlikely to manipulate them into decisions that they do not want. Moreover, these findings stipulate that nudges are a promising behaviour change tool especially in situations where people do not have strong preferences (Venema, Kroese, Benjamins, & De Ridder, 2020). Examples of these situations are when people are indifferent to the behaviour at hand, when they have good intentions that they forget about, when they experience *conflicting* preferences, and in novel choice contexts where people do not know what to do. In the remainder of this chapter we will discuss how nudging has been implemented in the workplace thus far, some points of attention when implementing a nudge intervention, and finally some limitations of nudges.

2 Applicability to workplace studies

Even though nudges were initially introduced as a governmental policy instrument, it also piqued the interest of management teams (e.g., Beshears & Gino, 2015; Haugh, 2017; Thaler & Sunstein, 2008). Much like the traditional governmental practices to change behaviour, organizations typically aim to change undesirable behaviours of employees through education or

sanctions, with similarly small results (e.g., Staddon, Cycil, Goulden, Leygue, & Spence, 2016; Thompa, Trevithick, & McLeod, 2007). Moreover, the paternalistic nature of many workplace health promotion (WHP) interventions is known to invoke low participation in these programs and even reactance (e.g., Hannon, Hammerback, Garson, Harris, & Sopher, 2012; Röttger et al., 2017). Nudge interventions, which require little to no effort or time on the part of the employees, therefore fill this research gap and provide a refreshing alternative to traditional organizational intervention policies. This chapter highlights three major domains in which companies can use nudging: (1) supporting physical health of employees, (2) decreasing impact of the company on the environment, and (3) facilitating adherence to company rules.

2.1 Physical and health of employees

Employee well-being is related to increased productivity at work and reduced absenteeism, while employee sickness even can directly increase costs for companies in the US in the form of hospital bills (Goetzel & Ozminkowski, 2008; Soler et al., 2010; Ybema, van Vuuren, & van Dam, 2020). This explains why companies welcome cost-effective solutions, such as nudges, to help their employees make healthier choices. For example, reducing the time spent sitting during the workday has been shown to have important health benefits (Straker & Mathiassen, 2009). A considerable number of employers, with Google and Facebook as well-known examples, have therefore invested in sit-stand desks (SSDs) to provide their employees with the possibility to work standing up (Carlton, 2011). However, research has found that SSDs are mostly used for sitting after the novelty wears off, and people simply forget to stand (e.g., De Cocker et al., 2015; Pronk, Katz, Lowry, & Payfer, 2012; Wilks, Mortimer, & Nylén, 2006). A recent longitudinal study found that a nudge intervention that placed the SSDs by default at standing height increased stand-up working rates by approximately seven times compared to baseline observations (Venema, Kroese, & De Ridder, 2018). Also, stair usage is a frequently targeted behaviour of nudge interventions to increase physical activity in the workplace, for example by placing footprints leading to the staircase or displaying the number of potential calories burned at the point of choice (Bellicha et al., 2015; Van der Meiden, Kok, & Van der Velde, 2019).

Besides physical activity, large health gains can be won by improving diets. It is therefore not surprising that healthy eating behaviour is the most targeted domain in the nudge literature (Szasz et al., 2018). Self-serving canteens are especially important areas in the workplace where employers can nudge employees towards a healthier lifestyle (Schliemann, & Woodside, 2019; Velema, Vyth, Hoekstra, & Steenhuis, 2018). Recent meta-analyses on nudging healthy food choices revealed the most promise for nudges that influence convenience, such as repositioning healthy options to more prominent places (e.g., at the cash register, Van Gestel, Kroese, & De Ridder, 2018; at the start of a buffet, Flores, Reimann, Castaño, & Lopez, 2019) and using smaller cutlery (e.g., Cadario & Chandon, 2020; James, Maher, Biddle, & Broom, 2018; Skov, Lourenço, Hansen, Mikkelsen, & Schofield, 2013). In contrast, nudges that provided caloric information and labelling products as healthy were less influential (Cadario & Chandon, 2020). One explanation could be that since hungry people are less interested in the healthiness of food (Siep et al., 2009), health information becomes a less relevant factor in food choices compared to its convenience (Hoeftling & Strack, 2010). Whereas nudges are mostly used to change behaviours that are directly beneficial to employees' well-being, they can also be used to encourage behaviours that benefit individuals indirectly through clean and safe environments.

2.2 Sustainability

It has become more important for companies to be CO₂ neutral, also referred to as ‘corporate greening’ (Raineri & Paillé, 2016). In the workplace, many factors can contribute to achieve these organizational goals, such as recycling behaviour, energy conservation, waste reduction, and employees’ mode of transport (e.g., Stringer, 2010). In line with observations about the role of a priori preferences in the nudge literature (Venema, Kroese, Benjamins et al., 2020), research has found that organizational norms and practices concerning environmentally friendly behaviours are particularly effective among employees with weak individual environmental concerns (Dumont, Shen, & Deng, 2017; Raineri & Paillé, 2016). Nudges therefore provide a promising behaviour change tool to help employees behave in line with the company’s sustainability goals (Schubert, 2017). For example, changing the default printer settings to double-sided printing led to a 15% reduction in paper waste (Egebark & Ekström, 2016). Likewise, a systematic review found that desk-based electricity use is most effectively reduced – up to 50% – by relying on people’s inertia (i.e., the tendency to make no active decision) by programming devices to automatically switch off after a period of non-activity (Staddon et al., 2016). Environmentally friendly behaviours that do require active decisions, such as recycling, are best served by nudges that emphasize social norms to act environmentally friendly (Abrahamse & Steg, 2013). For example, a dynamic norm nudge – ‘more and more customers are switching from to-go cups to a sustainable alternative’ – led to a 17.3% switch from disposable cups to reusable ceramic mugs at a worksite café (Loschelder, Siepelmeyer, Fischer, & Rubel, 2019).

2.3 Adherence to company rules

Companies make rules about behaviours in the realm of safety, hygiene, and liability that are too harmful when people are left to their own devices. Non-adherence to these rules can be a great source of frustration, but nudges have the potential to address the causes (Haugh, 2017; Lindhout & Reniers, 2017). For example, non-adherence to cybersecurity policies is primarily caused by habits and cognitive biases concerning the reality of the risk (Somme stad, Karlzén, & Hallberg, 2019). However, nudges that influence the threat appraisal alone (e.g., pop-up warnings and framing of the risk) are not enough; a sense of ownership of what is under attack is crucial for a successful intervention (Briggs, Jeske, & Coventry, 2017; Renaud & Zimmermann, 2019). In fact, several studies have shown that employees who feel part of the workplace community (i.e., high social cohesion) are more likely to adhere to safety rules (e.g., Kwok, Harris, & McLaws, 2017; Leach, 2003). Therefore, nudge interventions that target social aspects of the desirable behaviour are particularly promising to improve adherence. To illustrate, although employees in health care, food, and agriculture sectors know that they should wash their hands (i.e., it is the injunctive norm – what people *should* do; Kallgren, Reno, & Cialdini, 2000), there is hardly any social control in the privacy of the bathroom where the behaviour should take place (Oldfield, 2017). A study in a hospital showed that medical staff engaged more often in hand hygiene behaviours when they were overtly observed (Wu et al., 2018). Changing the choice architecture in such a way that the desirable behaviour becomes visible (i.e., boosting the descriptive norm – what people *actually* do) may thus be an effective solution. Another cause of non-compliance to company rules is ‘sludge’ – unnecessary lengthy procedures in administration (Sunstein, 2019). Nudges that simplify forms and procedures have been shown effective for tax compliance (e.g., John & Blume, 2018) and also show great promise for companies. For example, removing non-essential questions in an application procedure led to lower voluntary dropout of high-quality applicants (Linos & Riesch, 2020). To summarize, nudge interventions

show promise to help improve employees' physical health, reach companies' sustainability goals, and increase adherence to company rules. However, more high-quality empirical research is necessary (Szasz et al., 2018).

3 Methodology/research approach

Several toolboxes are available that provide a step-by-step guide to implement nudge interventions (see Further Reading section), but these are mostly created with practitioners in mind. This section therefore particularly addresses common pitfalls that nudge *researchers* encounter, to help improve the quality of empirical nudge research. The first three are practical issues that one may encounter when designing a nudge, creating a research design, or implementing a nudge. The fourth pitfall concerns the semantic discussion of what qualifies as a nudge.

The first pitfall is to copy and paste nudge interventions from one context to another. Nudge researchers might be tempted to start with a nudge type that they want to investigate (e.g., a default nudge) and go in search of a suitable context to do so. However, as the starting point of nudge research, we strongly advocate a 'diagnostic approach', in which the undesirable decision or behaviour is identified and the choice architecture is mapped to specify the exact physical location (where), the timing of the decision (when), and the causes of the undesirable behaviour (why; e.g., Hansen, 2018). Short surveys or focus groups concerning the reasons for the undesirable behaviour provide input to select a nudge type that addresses the most pressing cause of the undesirable behaviour, such as poor social norms, convenience, cognitive biases, habits, etc. (e.g., Murtagh et al., 2013; Venema et al., 2018). The importance of considering the *where* and *when* is illustrated by a study in which employees were provided with feedback on their desk energy usage (Murtagh et al., 2013). Engagement with the feedback had to be initiated by clicking on a desktop icon. The feedback intervention did not lead to a considerable drop in energy use. Afterwards the data showed that 41% of the employees did not access their feedback even once. In this particular case, the decision to engage with the feedback preceded the decision to reduce energy usage, unintentionally creating another choice context.

The second pitfall pertains to the research design. Despite the popularity of randomized control trials, also by governmental organizations (Feitsma & Schillemaans, 2019), pre and post measures are often more suitable when it comes to nudge interventions. As nudges are implemented in specific contexts, this may complicate finding good control conditions that are, apart from the implementation of the nudge, identical to the intervention condition. Notable exceptions are online nudges and nudges in letters (e.g., Meeker et al., 2014). Longitudinal within-subject designs where the impact of the nudge intervention is followed over a prolonged period especially provide valuable knowledge (Bucher et al., 2016; Van Gestel et al., 2018; Velema et al., 2018).

The third pitfall is not being transparent to the key stakeholders in the nudge intervention. It is important to be transparent with the workforce about the nudge and to create support. Proper briefing of management and employees who are directly responsible for the choice environment (e.g., canteen employees, cleaners, IT personnel, etc.) has been found crucial to the success of nudge interventions (Schliemann & Woodside, 2019). Transparency and disclosure of the implementation and intention of the nudge are important contributors to acceptance of nudging (Steffel, Williams, & Pogacar, 2016). Moreover, current evidence suggests that it does not come at the cost of effectiveness (Bang, Shu, & Weber, 2018; Bruns, Kantorowicz-Reznichenko, Klement, Jonsson, & Rahali, 2018).

The fourth pitfall relates to the semantic discussion of what counts as a nudge (and what does not). Oftentimes, interventions are labelled as nudges because the term inspires or entuses those who wish to implement an intervention, but the use of the term has become too widespread.

To improve the quality of empirical knowledge on nudges, researchers are urged to be mindful when using the term nudge (e.g., Osman et al., 2020; Wilson, Buckley, Buckley, & Bogomolova, 2016). Marketing strategies (that aim to improve profits – not the well-being of the decision maker) and financial incentives, such as taxes and bonuses (e.g., Cornwell & Krantz, 2014), clutter the nudge literature (Marchiori, Adriaanse, & De Ridder, 2017). Apart from this, there are other examples of interventions that change the environment to improve well-being but that are not considered nudges.

First, merely introducing a healthy choice where previously there was none would not be considered a nudge. However, *increasing the variety* of healthy options is considered a nudge. For example, ensuring that 70% of soda vending machine options consist of beverages that fall under healthy nutrition guidelines does count as a nudge (e.g., Kocken et al., 2012; Van Kleef, Otten, & van Trijp, 2012) and taps into availability heuristics and salience. Second, environmental interventions that do not target *decisions* do not qualify as nudges. For example, it has been shown that having green plants in the office helps with restoring attention after fatiguing tasks (Raanaas, Evensen, Rich, Sjøstrøm, & Patil, 2011). Although this may have promising effects on employee well-being, this does not meet the definition of nudges as no actual choice or decision is affected. Third, a key feature of nudges is that they change the environment in which the decision is made (i.e., the choice architecture). To illustrate, employees might indicate that they do not like to bike to work because they are afraid that their bike will be stolen while at work (e.g., Biernat, Buchholtz, & Bartkiewicz, 2018). When the company then builds a bicycle shed, it removes the foreseen barrier by making changes in the environment. However, since the decision to go by bike is made at the homes of the employees, this would not be considered choice architecture and hence the intervention is not a nudge. To sum up, when researchers design nudge intervention studies, they are advised to adopt a diagnostic approach before implementation, use within-subject experimental designs, be transparent about the aim of the intention to stakeholders, and be mindful when classifying their intervention as a ‘nudge’.

4 Limitations

Even when taking precautions, the success of nudge interventions is not a guarantee, and it is important to be aware of the limitations of nudges. First, despite the prominent place of the dual systems theory in the origin of nudges, there is little empirical proof that these systems are actually distinct (i.e., Melnikoff & Bargh, 2018; Mugg, 2016) and that this distinction poses implications for the effectiveness of nudges (Lin, Osman, & Ashcroft, 2017; Osman et al., 2020). To illustrate, a recent experiment demonstrated that a default nudge that stimulated sustainable behaviour was equally effective among those who had plenty or little cognitive resources available (Van Gestel, Adriaanse, & De Ridder, 2020). Moreover, the effectiveness of default nudges has been explained by inertia and loss aversion (explanations based on system 1), but people also stick with the default because they want to save time or because they see the default as a recommendation from the authorities (i.e., rational system 2 explanations) (Huh, Vosgerau, & Morewedge, 2014; Jachimowicz, Duncan, Weber, & Johnson, 2019). Not only has relying on the dual process theory caused ample confusion in defining what is and what is not a nudge (Berthet & Ovrard, 2019), the presumed uncontrollability of system 1 is the source of many ethical debates on nudges.² Letting go of the dual process theory in relation to nudges is shifting the nudging literature back to the field of psychology to uncover *through which mechanisms* the choice environments influence individual decisions (e.g., De Ridder et al., 2020).

Finally, it is important to point out that there are several outstanding questions about nudging. As nudges are changes within a specific choice architecture, effects are to be expected

in this exact situation. It is currently unclear if nudges have the potential to lead to spillover effects in other contexts (i.e., from work to home life) and if nudges remain effective in the long term. It should also be pointed out that nudges are not a panacea, but rather an instrument that has promise – if implemented with appropriate care and consideration. Some problematic behaviours are better addressed with other measures, such as strict agreements, salary bonuses (Mols, Haslam, Jetten, & Steffens, 2015), or with an eye for the systematic circumstances (i.e., political climate) rather than solely focusing on individual decisions (Meder, Fleischhut, & Osman, 2018).

5 Theory relevance to practice

In the workplace, employees' main priorities lie with performing well on their job, sometimes at the expense of behaviours that support performance in the long run, impacting employees' health and well-being (e.g., Maslach, Schaufeli, & Leiter, 2001). Nudging is a valuable behaviour change tool with the potential to facilitate desirable behaviours that are insufficiently addressed with traditional policy tools, such as educational workshops and financial incentives (Thaler & Sunstein, 2008). The incremental value of the concept of nudges to the workplace lies in the understanding that choice architecture influences individual decision-making. Nudge interventions use this influence to encourage desirable behaviour, while leaving the freedom of choice intact. Moreover, organizations can use the concept of nudges to have a critical look at their current choice environment, for example to reflect on which defaults are currently in place, which norms are conveyed by the environment, and how objects (e.g., recycling bins) are positioned in the space where they need to be used. When developing nudges, however, one should be careful and conscientious in finding the critical environmental trigger, create appropriate research designs, and not omit being transparent with those at the receiving end of the nudge intervention. Yet, when taking these common pitfalls into consideration, nudges offer a practical solution to a wide variety of behaviours in the workplace.

6 Further reading

- Hansen, P. G. (2019). *Tools and ethics for applied behavioural insights: The BASIC toolkit*. Organisation for Economic Co-operation and Development, OECD. <https://doi.org/10.1787/9ea76a8f-en>
- Hummel, D., & Maedche, A. (2019). How effective is nudging? A quantitative review on the effect sizes and limits of empirical nudging studies. *Journal of Behavioral and Experimental Economics*, 80, 47–58. <https://doi.org/10.1016/j.socec.2019.03.005>
- Lamprell, K., Tran, Y., Arnolda, G., & Braithwaite, J. (2020). Nudging clinicians: A systematic scoping review of the literature. *Journal of Evaluation in Clinical Practice*, 27(1), 175–192. <https://doi.org/10.1111/jep.13401>
- Lindhout, P., & Reniers, G. (2017). What about nudges in the process industry? Exploring a new safety management tool. *Journal of Loss Prevention in the Process Industries*, 50, 243–256. <https://doi.org/10.1016/j.jlp.2017.10.006>

Notes

- 1 A third commonly used policy tool is increasing taxes, which is also regarded as an unpopular measure.
- 2 For a discussion on what the field of behavioural economics (cf. Chapter 18 Behavioural Economics Theory) should do with the dual process theory, see Grayot (2020).

7 References

- Abrahamse, W., & Steg, L. (2013). Social influence approaches to encourage resource conservation: A meta-analysis. *Global Environmental Change*, 23(6), 1773–1785. <https://doi.org/10.1016/j.gloenvcha.2013.07.029>
- Arno, A., & Thomas, S. (2016). The efficacy of nudge theory strategies in influencing adult dietary behaviour: A systematic review and meta-analysis. *BMC Public Health*, 16, 676. <https://doi.org/10.1186/s12889-016-3272-x>
- Bang, H. M., Shu, S. B., & Weber, E. U. (2018). The role of perceived effectiveness on the acceptability of choice architecture. *Behavioural Public Policy*, 1–21. <https://doi.org/10.1017/bpp.2018.1>
- Baumeister, R. F., Sparks, E. A., Stillman, T. F., & Vohs, K. D. (2008). Free will in consumer behavior: Self-control, ego depletion, and choice. *Journal of Consumer Psychology*, 18, 4–13. <https://doi.org/10.1016/j.jcps.2007.10.002>
- Bell, K., McCullough, L., Salmon, A., & Bell, J. (2010). “Every space is claimed”: Smokers’ experiences of tobacco denormalisation. *Sociology of Health & Illness*, 32(6), 914–929. <https://doi.org/10.1111/j.1467-9566.2010.01251.x>
- Bellicha, A., Kieusseian, A., Fontvieille, A. M., Tataranni, A., Charreire, H., & Oppert, J. M. (2015). Stair-use interventions in worksites and public settings: A systematic review of effectiveness and external validity. *Preventive Medicine*, 70, 3–13. <https://doi.org/10.1016/j.ypmed.2014.11.001>
- Bemelmans-Videc, M. L., Rist, R. C., & Vedung, E. O. (Eds.). (2011). *Carrots, sticks, and sermons: Policy instruments and their evaluation* (Vol. 1). New Brunswick, NJ: Transaction Publishers.
- Berthet, V., & Ouvrard, B. (2019). Nudge: Towards a consensus view? *Psychology and Cognitive Science Open Journal*, 5, 1–5. <https://doi.org/10.17140/PCSOJ-5-143>
- Beshars, J., & Gino, F. (2015, May) Leaders as decision Architects. *Harvard Business Review*. Retrieved from www.organisationalpsychology.nz/content/150817HBR_Leaders_as_Decision_Architects_R1505C.PDF
- Biernat, E., Buchholtz, S., & Bartkiewicz, P. (2018). Motivations and barriers to bicycle commuting: Lessons from Poland. *Transportation Research Part F: Traffic Psychology and Behaviour*, 55, 492–502. <https://doi.org/10.1016/j.trf.2018.03.024>
- Bovens, L. (2009). The ethics of nudge. In T. Grüne-Yanoff & S. O. Hansson (Eds.), *Preference change: Approaches from philosophy, economics and psychology* (pp. 207–219). New York: Springer.
- Briggs, P., Jeske, D., & Coventry, L. (2017). Behavior change interventions for cybersecurity. *Behavior Change Interventions for Cybersecurity*, 115–136. <https://doi.org/10.1016/B978-0-12-802690-8.00004-9>
- Bronchetti, E. T., Dee, T. S., Huffman, D. B., & Magenheimer, E. (2013). When a nudge isn’t enough: Defaults and saving among low-income tax filers. *National Tax Journal*, 66(3), 609–635. <https://doi.org/10.3386/w16887>
- Bruns, H., Kantorowicz-Reznichenko, E., Klement, K., Jonsson, M. L., & Rahali, B. (2018). Can nudges be transparent and yet effective? *Journal of Economic Psychology*, 65, 41–59. <https://doi.org/10.1016/j.joep.2018.02.002>
- Bucher, T., Collins, C., Rollo, M. E., McCaffrey, T. A., De Vlieger, N., Van der Bend, D., . . . & Perez-Cueto, F. J. (2016). Nudging consumers towards healthier choices: A systematic review of positional influences on food choice. *British Journal of Nutrition*, 115(12), 2252–2263. <https://doi.org/10.1017/S0007114516001653>
- Cadario, R., & Chandon, P. (2020). Which healthy eating nudges work best? A meta-analysis of field experiments. *Marketing Science*, 39(3), 465–486. <https://doi.org/10.1287/mksc.2018.1128>
- Carlton, J. (2011, September). Standing desks are on the rise. *Wall Street Journal*. Retrieved from www.wsj.com/articles/SB10001424053111904199404576541011003270644
- Christensen, T., & Lægreid, P. (2002). New public management: Puzzles of democracy and the influence of citizens. *Journal of Political Philosophy*, 10(3), 267–295. <https://doi.org/10.1111/1467-9760.00153>
- Cornwell, J. F., & Krantz, D. H. (2014). Public policy for thee, but not for me: Varying the grammatical person of public policy justifications influences their support. *Judgment and Decision Making*, 9(5), 433.
- De Cocker, K., Veldeman, C., De Bacquer, D., Braeckman, L., Owen, N., Cardon, G., & De Bourdeaudhuij, I. (2015). Acceptability and feasibility of potential intervention strategies for influencing sedentary time at work: Focus group interviews in executives and employees. *International Journal of Behavioral Nutrition and Physical Activity*, 12, 22. <https://doi.org/10.1186/s12966-015-0177-5>
- De Ridder, D., Feitsma, J., van den Hoven, M., Kroese, F., Schillemans, T., Verweij, M., . . . & de Vet, E. (2020). Simple nudges are not so easy. *Behavioural Public Policy*. <https://doi.org/10.1017/bpp.2020.36>

- De Wijk, R. A., Maaskant, A. J., Polet, I. A., Holthuysen, N. T., van Kleef, E., & Vingerhoeds, M. H. (2016). An in-store experiment on the effect of accessibility on sales of wholegrain and white bread in supermarkets. *PLoS One*, 11(3), e0151915. <https://doi.org/10.1371/journal.pone.0151915>
- Dolan, P., Hallsworth, M., Halpern, D., King, D., Metcalfe, R., & Vlaev, I. (2012). Influencing behaviour: The mindscape way. *Journal of Economic Psychology*, 33, 264–277. <https://doi.org/10.1016/j.joep.2011.10.009>
- Dumont, J., Shen, J., & Deng, X. (2017). Effects of green HRM practices on employee workplace green behavior: The role of psychological green climate and employee green values. *Human Resource Management*, 56(4), 613–627. <https://doi.org/10.1002/hrm.21792>
- Egebark, J., & Ekström, M. (2016). Can indifference make the world greener? *Journal of Environmental Economics and Management*, 76, 1–13. <https://doi.org/10.1016/j.jeem.2015.11.004>
- Epstein, S. (2003). Cognitive-experiential self-theory of personality. *Handbook of Psychology*, 159–184. <https://doi.org/10.1002/0471264385.wei0507>
- Evans, J. S. B. (2003). In two minds: Dual-process accounts of reasoning. *Trends in Cognitive Sciences*, 7(10), 454–459. <https://doi.org/10.1016/j.tics.2003.08.012>
- Feitsma, J., & Schillemans, T. (2019). Behaviour experts in government: From newcomers to professionals? In *Handbook of behavioural change and public policy*. Cheltenham, UK: Edward Elgar Publishing. <https://doi.org/10.4337/9781785367854.00015>
- Flores, D., Reimann, M. C., Castaño, R., & Lopez, A. (2019). If I indulge first, I will eat less overall: The unexpected interaction effect of indulgence and presentation order on consumption. *Journal of Experimental Psychology: Applied*, 25(2), 162–176. <https://doi.org/10.1037/xap0000210>
- Gigerenzer, G. (2015). On the supposed evidence for libertarian paternalism. *Review of Philosophy and Psychology*, 6(3), 361–383. <https://doi.org/10.1007/s13164-015-0248-1>
- Glod, W. (2015). How nudges often fail to treat people according to their own preferences. *Social Theory and Practice*, 41(4), 599–617. <https://doi.org/10.5840/soctheorpract201541433>
- Goetzl, R. Z., & Ozminowski, R. J. (2008). The health and cost benefits of work site health-promotion programs. *Annual Review of Public Health*, 29, 303–323. <https://doi.org/10.1146/annurev.publhealth.29.020907.090930>
- Goldin, J. (2015). Which way to Nudge: Uncovering preferences in the behavioral age. *Yale Law Journal*, 125, 226–270. <https://doi.org/10.2139/ssrn.2570930>
- Grayot, J. D. (2020). Dual process theories in behavioral economics and neuroeconomics: A critical review. *Review of Philosophy and Psychology*, 11, 105–136. <https://doi.org/10.1007/s13164-019-00446-9>
- Halpern, D. (2015). *Inside the nudge unit: How small changes can make a big difference*. Random House.
- Hannon, P. A., Hammerback, K., Garson, G., Harris, J. R., & Sopher, C. J. (2012). Stakeholder perspectives on workplace health promotion: a qualitative study of mid-sized employers in low-wage industries. *American Journal of Health Promotion*, 27(2), 103–110. <https://doi.org/10.4278/ajhp.110204-QUAL-51>
- Hansen, P. G. (2018). What are we forgetting? *Behavioural Public Policy*, 2(2), 190–197. <https://doi.org/10.1017/bpp.2018.13>
- Hansen, P. G., & Jespersen, A. M. (2013). Nudge and the manipulation of choice: A framework for the responsible use of the nudge approach to behavior change in public policy. *The European Journal of Risk Regulation*, 1, 3–28. <https://doi.org/10.1017/S1867299X00002762>
- Haugh, T. (2017). Nudging corporate compliance. *American Business Law Journal*, 54(4), 683–741.
- Hausman, D. M., & Welch, B. (2010). Debate: To nudge or not to nudge. *Journal of Political Philosophy*, 18, 123–136. <https://doi.org/10.1111/j.1467-9760.2009.00351.x>
- Hertwig, R., & Ryall, M. D. (2019). Nudge versus boost: Agency dynamics under libertarian paternalism. *The Economic Journal*, 130(629), 1–32. <https://doi.org/10.1093/ej/uez054>
- Hoefling, A., & Strack, F. (2010). Hunger induced changes in food choice: When beggars cannot be choosers even if they are allowed to choose. *Appetite*, 54(3), 603–606. <https://doi.org/10.1016/j.appet.2010.02.016>
- Huang, C. J., & Baum, M. L. (2012). Nudge ethics: Just a game of billiards? *The American Journal of Bioethics*, 12(2), 22–24. <https://doi.org/10.1080/15265161.2011.634955>
- Huh, Y. E., Vosgerau, J., & Morewedge, C. K. (2014). Social defaults: Observed choices become choice defaults. *Journal of Consumer Research*, 41(3), 746–760. <https://doi.org/10.1086/677315>
- Hummel, D., & Maedche, A. (2019). How effective is nudging? A quantitative review on the effect sizes and limits of empirical nudging studies. *Journal of Behavioral and Experimental Economics*, 80, 47–58. <https://doi.org/10.1016/j.jsocec.2019.03.005>

- Jachimowicz, J. M., Duncan, S., Weber, E. U., & Johnson, E. J. (2019). When and why defaults influence decisions: A meta-analysis of default effects. *Behavioural Public Policy*, 3(2), 159–186. <https://doi.org/10.1017/bpp.2018.43>
- James, L. J., Maher, T., Biddle, J., & Broom, D. R. (2018). Eating with a smaller spoon decreases bite size, eating rate and ad libitum food intake in healthy young males. *British Journal of Nutrition*, 120(7), 830–837. <https://doi.org/10.1017/S0007114518002246>
- John, P., & Blume, T. (2018). How best to nudge taxpayers? The impact of message simplification and descriptive social norms on payment rates in a central London local authority. *Journal of Behavioral Public Administration*, 1. <https://doi.org/10.30636/jbpa.11.10>
- Kahneman, D. (2011). *Thinking, fast and slow*. New York: Farrar, Straus, and Giroux.
- Kallgren, C. A., Reno, R. R., & Cialdini, R. B. (2000). A focus theory of normative conduct: When norms do and do not affect behavior. *Personality and Social Psychology Bulletin*, 26(8), 1002–1012. <https://doi.org/10.1177/01461672002610009>
- Kocken, P. L., Eeuwijk, J., Van Kesteren, N. M., Dusseldorp, E., Buijs, G., Bassa-Dafesh, Z., & Snel, J. (2012). Promoting the purchase of low-calorie foods from school vending machines: A cluster-randomized controlled study. *Journal of School Health*, 82(3), 115–122. <https://doi.org/10.1111/j.1746-1561.2011.00674.x>
- Kwok, Y. L. A., Harris, P., & McLaws, M. L. (2017). Social cohesion: The missing factor required for a successful hand hygiene program. *American Journal of Infection Control*, 45(3), 222–227. <https://doi.org/10.1016/j.ajic.2016.10.021>
- Leach, J. (2003). Improving user security behaviour. *Computers & Security*, 22(8), 685–692. [https://doi.org/10.1016/S0167-4048\(03\)00007-5](https://doi.org/10.1016/S0167-4048(03)00007-5)
- Leggett, W. (2014). The politics of behaviour change: Nudge, neoliberalism and the state. *Policy & Politics*, 42, 3–19. <https://doi.org/10.1332/030557312X655576>
- Lichtenstein, S., & Slovic, P. (Eds.). (2006). *The construction of preference*. Cambridge: Cambridge University Press.
- Lin, Y., Osman, M., & Ashcroft, R. (2017). Nudge: Concept, effectiveness, and ethics. *Basic and Applied Social Psychology*, 39(6), 293–306. <https://doi.org/10.1080/01973533.2017.1356304>
- Lindhout, P., & Reniers, G. (2017). What about nudges in the process industry? Exploring a new safety management tool. *Journal of Loss Prevention in the Process Industries*, 50, 243–256. <https://doi.org/10.1016/j.jlp.2017.10.006>
- Linos, E., & Riesch, N. (2020). Thick red tape and the thin blue line: A field study on reducing administrative burden in police recruitment. *Public Administration Review*, 80, 92–103. <https://doi.org/10.1111/puar.13115>
- Loschelder, D. D., Siepelmeyer, H., Fischer, D., & Rubel, J. A. (2019). Dynamic norms drive sustainable consumption: Norm-based nudging helps café customers to avoid disposable to-go-cups. *Journal of Economic Psychology*, 75, 102146. <https://doi.org/10.1016/j.joep.2019.02.002>
- Marchiori, D. R., Adriaanse, M. A., & De Ridder, D. T. (2017). Unresolved questions in nudging research: Putting the psychology back in nudging. *Social and Personality Psychology Compass*, 11, e12297. <https://doi.org/10.1111/spc3.12297>
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52, 397–422. <https://doi.org/10.1146/annurev.psych.52.1.397>
- Meder, B., Fleischhut, N., & Osman, M. (2018). Beyond the confines of choice architecture: A critical analysis. *Journal of Economic Psychology*, 68, 36–44. <https://doi.org/10.1016/j.joep.2018.08.004>
- Meeker, D., Knight, T. K., Friedberg, M. W., Linder, J. A., Goldstein, N. J., Fox, C. R., . . . & Doctor, J. N. (2014). Nudging guideline-concordant antibiotic prescribing: A randomized clinical trial. *JAMA Internal Medicine*, 174(3), 425–431. <https://doi.org/10.1001/jamainternmed.2013.14191>
- Melnikoff, D. E., & Bargh, J. A. (2018). The mythical number two. *Trends in Cognitive Sciences*, 22(4), 280–293. <https://doi.org/10.1016/j.tics.2018.02.001>
- Mols, F., Haslam, S. A., Jetten, J., & Steffens, N. K. (2015). Why a nudge is not enough: A social identity critique of governance by stealth. *European Journal of Political Research*, 54, 81–98. <https://doi.org/10.1111/1475-6765.12073>
- Mugg, J. (2016). The dual-process turn: How recent defenses of dual-process theories of reasoning fail. *Philosophical Psychology*, 29(2), 300–309. <https://doi.org/10.1080/09515089.2015.1078458>
- Murtagh, N., Nati, M., Headley, W. R., Gatersleben, B., Gluhak, A., Imran, M. A., & Uzzell, D. (2013). Individual energy use and feedback in an office setting: A field trial. *Energy Policy*, 62, 717–728. <https://doi.org/10.1016/j.enpol.2013.07.090>

- OECD. (2017). *Behavioural insights and public policy lessons from around the world*. Paris: OECD Publishing.
- Oldfield, K. (2017). The social aspects of hand washing in American restaurants: An administrative approach to reducing public and private health care costs. *Administration & Society*, 49(5), 753–771. <https://doi.org/10.1177/0095399716638121>
- Olejnik, S., & Algina, J. (2000). Measures of effect size for comparative studies: Applications, interpretations, and limitations. *Contemporary Educational Psychology*, 25(3), 241–286. <https://doi.org/10.1006/ceps.2000.1040>
- Osman, M., Radford, S., Lin, Y., Gold, N., Nelson, W., & Löfstedt, R. (2020). Learning lessons: How to practice nudging around the world. *Journal of Risk Research*, 23, 11–19. <https://doi.org/10.1080/13669877.2018.1517127b>
- Pronk, N. P., Katz, A. S., Lowry, M., & Payfer, J. R. (2012). Reducing occupational sitting time and improving worker health: The take-a-stand project, 2011. *Preventing Chronic Disease*, 9, 110323. <https://doi.org/10.5888/pcd9.110323>
- Raanaas, R. K., Evensen, K. H., Rich, D., Sjøstrøm, G., & Patil, G. (2011). Benefits of indoor plants on attention capacity in an office setting. *Journal of Environmental Psychology*, 31(1), 99–105. <https://doi.org/10.1016/j.jenvp.2010.11.005>
- Raineri, N., & Paillé, P. (2016). Linking corporate policy and supervisory support with environmental citizenship behaviors: The role of employee environmental beliefs and commitment. *Journal of Business Ethics*, 137, 129–148. <https://doi.org/10.1007/s10551-015-2548-x>
- Renaud, K., & Zimmermann, V. (2019). Nudging folks towards stronger password choices: Providing certainty is the key. *Behavioural Public Policy*, 3(2), 228–258. <https://doi.org/10.1017/bpp.2018.3>
- Röttger, S., Maier, J., Krex-Brinkmann, L., Kowalski, J. T., Krick, A., Felfé, J., & Stein, M. (2017). Social cognitive aspects of the participation in workplace health promotion as revealed by the theory of planned behavior. *Preventive Medicine*, 105, 104–108. <https://doi.org/10.1016/j.ypmed.2017.09.004>
- Schliemann, D., & Woodside, J. V. (2019). The effectiveness of dietary workplace interventions: A systematic review of systematic reviews. *Public Health Nutrition*, 22(5), 942–955. <https://doi.org/10.1017/S1368980018003750>
- Schubert, C. (2017). Green nudges: Do they work? Are they ethical? *Ecological Economics*, 132, 329–342. <https://doi.org/10.1016/j.ecolecon.2016.11.009>
- Schwartz, B., & Ward, A. (2004). Doing better but feeling worse: The paradox of choice. In P. A. Linley & S. Joseph (Eds.), *Positive psychology in practice* (pp. 86–104). Hoboken, NJ: John Wiley & Sons Inc.
- Selinger, E., & Whyte, K. (2011). Is there a right way to nudge? The practice and ethics of choice architecture. *Sociology Compass*, 5(10), 923–935. <https://doi.org/10.1111/j.1751-9020.2011.00413.x>
- Siep, N., Roefs, A., Roebroek, A., Havermans, R., Bonte, M. L., & Jansen, A. (2009). Hunger is the best spice: An fMRI study of the effects of attention, hunger and calorie content on food reward processing in the amygdala and orbitofrontal cortex. *Behavioural Brain Research*, 198, 149–158. <https://doi.org/10.1016/j.bbr.2008.10.035>
- Skov, L. R., Lourenco, S., Hansen, G. L., Mikkelsen, B. E., & Schofield, C. (2013). Choice architecture as a means to change eating behaviour in self-service settings: A systematic review. *Obesity Reviews*, 14(3), 187–196. <https://doi.org/10.1111/j.1467-789X.2012.01054.x>
- Soler, R. E., Leeks, K. D., Razi, S., Hopkins, D. P., Griffith, M., Aten, A., . . . & Pronk, N. P. (2010). A systematic review of selected interventions for worksite health promotion: The assessment of health risks with feedback. *American Journal of Preventive Medicine*, 38(2), S237–S262. <https://doi.org/10.1016/j.amepre.2009.10.030>
- Sommestad, T., Karlén, H., & Hallberg, J. (2019). The theory of planned behavior and information security policy compliance. *Journal of Computer Information Systems*, 59(4), 344–353. <https://doi.org/10.1080/08874417.2017.1368421>
- Staddon, S. C., Cycil, C., Goulden, M., Leygue, C., & Spence, A. (2016). Intervening to change behaviour and save energy in the workplace: A systematic review of available evidence. *Energy Research & Social Science*, 17, 30–51. <https://doi.org/10.1016/j.erss.2016.03.027>
- Steffel, M., Williams, E. F., & Pogacar, R. (2016). Ethically deployed defaults: Transparency and consumer protection through disclosure and preference articulation. *Journal of Marketing Research*, 53(5), 865–880. <https://doi.org/10.1509/jmr.14.0421>
- Straker, L., & Mathiassen, S. E. (2009). Increased physical work loads in modern work: A necessity for better health and performance? *Ergonomics*, 52(10), 1215–1225. <https://doi.org/10.1080/00140130903039101>
- Stringer, L. (2010). *The green workplace: Sustainable strategies that benefit employees, the environment, and the bottom line*. New York, NY: Palgrave MacMillan.

- Sunstein, C. R. (2019). Sludge audits. *Behavioural Public Policy*, 1–20. <https://doi.org/10.1017/bpp.2019.32>
- Szaszi, B., Palinkas, A., Palfi, B., Szollosi, A., & Aczel, B. (2018). A systematic scoping review of the choice architecture movement: Toward understanding when and why nudges work. *Journal of Behavioral Decision Making*, 31(3), 355–366. <https://doi.org/10.1002/bdm.2035>
- Teixeira, P. J., Carraça, E. V., Marques, M. M., Rutter, H., Oppert, J. M., De Bourdeaudhuij, I., . . . & Brug, J. (2015). Successful behavior change in obesity interventions in adults: A systematic review of self-regulation mediators. *BMC Medicine*, 13, 84. <https://doi.org/10.1186/s12916-015-0323-6>
- Thaler, R. H., & Benartzi, S. (2004). Save more tomorrow™: Using behavioral economics to increase employee saving. *Journal of Political Economy*, 112(S1), S164–S187. <https://doi.org/10.1086/380085>
- Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: Improving decisions about health, wealth, and happiness*. New Haven, CT: Yale University Press.
- Thompson, V. A. (2009). Dual-process theories: A metacognitive perspective. In J. S. B. T. Evans & K. Frankish (Eds.), *In two minds: Dual processes and beyond* (pp. 171–195). Oxford: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199230167.003.0008>
- Thompson, V. A., Turner, J. A. P., & Pennycook, G. (2011). Intuition, reason, and metacognition. *Cognitive Psychology*, 63(3), 107–140. <https://doi.org/10.1016/j.cogpsych.2011.06.001>
- Tompa, E., Trevithick, S., & McLeod, C. (2007). Systematic review of the prevention incentives of insurance and regulatory mechanisms for occupational health and safety. *Scandinavian Journal of Work, Environment & Health*, 85–95. <https://doi.org/10.5271/sjweh.1111>
- Trudel, R., Murray, K. B., Kim, S., & Chen, S. (2015). The impact of traffic light color-coding on food health perceptions and choice. *Journal of Experimental Psychology: Applied*, 21(3), 255. <https://doi.org/10.1037/xap0000049>
- Van de Veer, D. (1986). *Paternalistic intervention: The moral bounds on benevolence*. Princeton: Princeton University Press.
- Van der Meiden, I., Kok, H., & Van der Velde, G. (2019). Nudging physical activity in offices. *Journal of Facilities Management*, 17(4), 317–330. <https://doi.org/10.1108/JFM-10-2018-0063>
- Van Gestel, L. C., Adriaanse, M. A., & De Ridder, D. T. D. (2020). Do nudges make use of automatic processing? Unraveling the effects of a default nudge under type 1 and type 2 processing. *Comprehensive Results in Social Psychology*. <https://doi.org/10.1080/23743603.2020.1808456>
- Van Gestel, L. C., Kroese, F. M., & De Ridder, D. T. D. (2018). Nudging at the checkout counter: A longitudinal study of the effect of a food repositioning nudge on healthy food choice. *Psychology & Health*, 33(6), 800–809. <https://doi.org/10.1080/08870446.2017.1416116>
- Van Kleef, E., Otten, K., & van Trijp, H. C. (2012). Healthy snacks at the checkout counter: A lab and field study on the impact of shelf arrangement and assortment structure on consumer choices. *BMC Public Health*, 12, 1072. <https://doi.org/10.1186/1471-2458-12-1072>
- Van Nieuw-Amerongen, M. E., Kremers, S. P. J., De Vries, N. K., & Kok, G. (2011). The use of prompts, increased accessibility, visibility, and aesthetics of the stairwell to promote stair use in a university building. *Environment and Behavior*, 43, 131–139. <https://doi.org/10.1177/0013916509341242>
- Velema, E., Vyth, E. L., Hoekstra, T., & Steenhuis, I. H. (2018). Nudging and social marketing techniques encourage employees to make healthier food choices: A randomized controlled trial in 30 worksite cafeterias in the Netherlands. *The American Journal of Clinical Nutrition*, 107(2), 236–246. <https://doi.org/10.1093/ajcn/nqx045>
- Venema, T. A. G., Kroese, F. M., Benjamins, J. S., & de Ridder, D. T. D. (2020). When in doubt, follow the crowd? Responsiveness to social proof nudges in the absence of clear preferences. *Frontiers in Psychology*, 11, 1385. <https://doi.org/10.3389/fpsyg.2020.01385>
- Venema, T. A. G., Kroese, F. M., & De Ridder, D. T. (2018). I'm still standing: A longitudinal study on the effect of a default nudge. *Psychology & Health*, 33(5), 669–681. <https://doi.org/10.1080/08870446.2017.1385786>
- Venema, T. A. G., Kroese, F. M., de Vet, E., & de Ridder, D. T. D. (2019). The one that I want: Strong personal preferences render the center-stage nudge redundant. *Food Quality and Preference*, 78, 103744. <https://doi.org/10.1016/j.foodqual.2019.103744>
- Venema, T. A. G., Kroese, F. M., Verplanken, B., & de Ridder, D. T. D. (2020). The (bitter) sweet taste of nudge effectiveness: The role of habits in a portion size nudge, a proof of concept study. *Appetite*, 104699. <https://doi.org/10.1016/j.appet.2020.104699>
- Vetter, M., & Kutzner, F. (2016). Nudge me if you can-how defaults and attitude strength interact to change behavior. *Comprehensive Results in Social Psychology*, 8–34. <https://doi.org/10.1080/23743603.2016.1139390>

- Welch, B. F. (2013). Shifting the concept of nudge. *Journal of Medical Ethics*, 39(8), 497–498. <https://doi.org/10.1136/medethics-2012-101111>
- Wilks, S., Mortimer, M., & Nylén, P. (2006). The introduction of sit–stand worktables; aspects of attitudes, compliance and satisfaction. *Applied Ergonomics*, 37(3), 359–365. <https://doi.org/10.1016/j.apergo.2005.06.007>
- Wilson, A. L., Buckley, E., Buckley, J. D., & Bogomolova, S. (2016). Nudging healthier food and beverage choices through salience and priming: Evidence from a systematic review. *Food Quality and Preference*, 51, 47–64. <https://doi.org/10.1016/j.foodqual.2016.02.009>
- Wu, K. S., Lee, S. S. J., Chen, J. K., Chen, Y. S., Tsai, H. C., Chen, Y. J., . . . & Lin, H. S. (2018). Identifying heterogeneity in the Hawthorne effect on hand hygiene observation: A cohort study of overtly and covertly observed results. *BMC Infectious Diseases*, 18, 369. <https://doi.org/10.1186/s12879-018-3292-5>
- Ybema, J. F., van Vuuren, T., & van Dam, K. (2020). HR practices for enhancing sustainable employability: Implementation, use, and outcomes. *The International Journal of Human Resource Management*, 31(7), 886–907. <https://doi.org/10.1080/09585192.2017.1387865>