114. Taxonomies of nudging

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A 'nudge' is any intervention designed to influence behaviour by changing the choice architecture. The 'choice architecture' refers to all of the elements that surround a decision and its options. By changing the choice architecture, one does not meaningfully change the decision, the options, or the consequences of choosing those options. Rather, by changing the choice architecture, one changes how those options or their attributes are thought about. Let's consider an example.

Imagine you are a manager at a major meal kit delivery provider intending to nudge greener meal selections. As it turns out, greener meal selections involve consuming more vegetables and less red meat. Your marketing team starts brainstorming potential nudges. What about removing all meal options containing red meat? No: bans do not qualify as a nudge. Perhaps make all meal options containing red meat more expensive? No: changing the economic incentives does not qualify as a nudge. Maybe pre-select more vegetarian meal options? Yes: setting defaults that are easy to avoid counts as a nudge. Letting customers know that the selection of vegetarian meals among all customers is on the rise? Yes: providing social norm information is a nudge. Awarding customers with a virtual green badge for selecting vegetarian meals? Yes: non-financial extrinsic motivators are a nudge. Labelling all meals with an A-through-F carbon letter grade? Yes: translating information into an easy-to-understand form is also a nudge.

As may be becoming quickly evident, the types of interventions that count as a 'nudge' are diverse. Consequently, scientists have been keen to devise a nudge taxonomy that can help organise the ever-expanding list of relevant interventions. One approach to this taxonomy development has been to consider what aspect of the world the nudge is changing or affecting. There are several such 'intervention'-based taxonomies. For example, the MINDSPACE taxonomy classifies nudges into Messenger, Incentives, Norms, Defaults, Salience, Priming, Affect, Commitment, and Ego (Dolan et al., 2012). Another intervention-based taxonomy divides nudges into those that trigger System 1 (arousing emotions), engage System 2 (encouraging joint evaluation), or bypass both systems (setting the default) (Beshears & Gino, 2015). Perhaps the most comprehensive intervention-based taxonomy divides nudges into those that affect decision information, which changes the type of information or the way it is presented (e.g., providing social reference points); decision structure, which changes the arrangement of options or the decision-making format (e.g., change option-related effort); and decision assistance, which reminds and commits decision-makers to their preferences (e.g., provide reminders) (Münscher et al., 2016).

Intervention-based taxonomies are helpful because they allow those intending to apply nudges an efficient way to identify the most plausible types of nudges given a set of constraints. For example, the meal kit delivery provider described above may face significant logistical limitations with interventions that change the decision structure (such as requiring significant backend coding) and should, therefore, redirect brainstorming towards decision information and decision assistance interventions.

A major limitation of intervention-based taxonomies is that they provide little insight regarding why a nudge is effective. This is problematic because nudges are often selected based on having identified relevant psychological barriers and motivators. For example, if customers are not purchasing green meals, it may be because they do not know which meals are green or because they are not motivated to act sustainably in this context. The psychological barrier underlying the target behaviour should dictate which nudge is applied.

A related limitation of intervention-based taxonomies is that they provide little insight regarding for whom the nudge will work best. This is problematic because nudges are often selected based on an expectation of which will work best on average rather than for different types of people. For example, those who make decisions based on intuition may be more responsive to a certain type of nudge than those who make decisions based on analysis. The psychological profile of the target group should also dictate which nudge is applied.

An alternative approach to taxonomy development, which addresses these two limitations, has been to consider what psychological processes the nudge is changing

or affecting. There are several such 'process'-based taxonomies. One suggests that nudges can be thought of in terms of the associated mental constraints, namely, self-control, attention, cognitive capacity, and understanding (Datta & Mullainathan, 2012). Perhaps the most comprehensive process-based taxonomy divides nudges into the following six categories (Luo et al., 2023): attention nudges use stimulus features to increase or decrease the salience of an option (e.g., highlighting some options); perception nudges frame the content of information to influence the conscious interpretation of the information (e.g., framing, labelling); memory nudges use encoding cues or retrieval cues to alter subsequent decisions (e.g., priming, reminders); effort nudges change the cognitive or physical ease associated with an option (e.g., defaults, convenience); intrinsic motivation nudges influence inherent interest toward an option in the absence of external factors (e.g., goal setting, social norm information); extrinsic motivation nudges impose external rewards or punishments to alter decisions (e.g., trivially small discounts, social rewards).

Let us now consider how this process-based taxonomy helps in nudge selection. Imagine that the meal kit delivery provider learns that the major barrier towards purchasing greener meals is that customers do not know the relative carbon footprint of each meal. For customers who are more analytical decision-makers (inferred, perhaps, from high engagement on the website or from slower meal choices), the provider may choose to nudge with carbon footprint labels applied to each meal option. By contrast, for customers who are more intuitive decision-makers (inferred, perhaps, from lack of engagement on the website or from faster meal choices), the provider may choose to nudge by changing the pre-selected meals to low carbon footprint ones.

Process-based nudge taxonomies have the potential to be expanded into a broad model of nudging, which the literature is currently lacking. This could be achieved by, first, expanding the psychological categories (to include goals, evaluation, etc.) and, second, by mapping out the relations and temporal sequence between the different psychological categories (e.g., goals feeding into motivation, which feeds into memory, which feeds into perceptions, which feeds into evaluations, etc.). Such a model of nudging would allow us to better explain, predict, and control when, why, and for whom nudges are effective.

References

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