

The art of nudging

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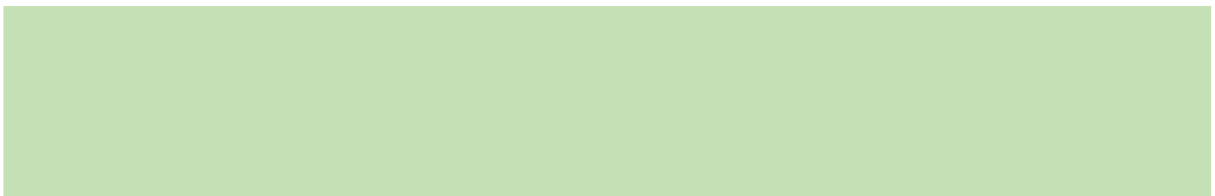
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Valorization Addendum



7.1 Social relevance

The growing trend in scientific research on nudging (Jia & Mustafa, 2023) stresses its social relevance and topicality. In 2018, one year after Richard H. Thaler received a Nobel Prize for his contributions to behavioral economics (and nudging) (Thaler, 2023) the interest in nudging throughout the scientific world spiked (Jia & Mustafa, 2023). While research topics regarding nudging are manifold (Jia & Mustafa, 2023), current topics on the research agenda are for example nudgeability, the role of moderators (like pre-existing preferences) in nudging, the effectiveness of different types of nudges (system 1 or system 2 nudges), the disclosure of a nudge's purpose (De Ridder et al., 2022) as well as the long-term and longitudinal effects of nudges (Eichhorn & Ott, 2019; Vecchio & Cavallo, 2019). The present dissertation investigated these current topics in an educational setting focusing on specific artwork nudges.

The goal of the present dissertation was to determine the effectiveness of different artwork nudges in an educational setting regarding healthy eating. These nudges are specifically based on the artwork of Alberto Giacometti and aim at improving the dietary behaviors of individuals (mainly university students), for example in a university cafeteria. There are two groups of beneficiaries from the insights of the current dissertation – the nudged individuals and the nudging individuals (choice architects). First, when a nudge is applied effectively individuals are able to effortlessly improve their decision-making (in this case regarding healthy eating behavior) while retaining all choice options (Thaler & Sunstein, 2009). Regarding the original Giacometti nudge it was concluded that while this nudge is a promising tool for the improvement of dietary behavior in students, it needs to be implemented carefully and necessitates empirical testing. In line with Sunstein (2022), it should be applied as a targeted nudge to ensure that only beneficiaries of this specific nudge are reached. Second, choice architects also benefit from the present findings. These choice architects are any individuals who are in charge of designing a decision-making context (Thaler & Sunstein, 2009). In the educational setting choice architects, for example, are the officials and staff of a university cafeteria or a university in general. Gaining deeper insights into how to design and implement an effective nudge simplifies the creation of an environment in which healthy choices can be made easily and effortlessly. Universities in Germany are required by law to create such healthy environments (Bauer & Römer, 2019). Food providers like university cafeterias are also required to meet strict regulations regarding healthiness and environmental settings (German Nutrition Society [DGE], 2022). Universities represent an important setting in which health interventions focusing on dietary behavior take place (Dietz et al., 2020). Applying a successful artwork nudge at a university cafeteria is particularly interesting for real-world decision-making contexts, because they can be applied easily and cost-effectively (e.g., Damgaard & Nielsen, 2017) and promote economic goals, for example, within the public health domain (Sunstein, 2014). The economic costs for health interventions in an educational setting are high. For example, in 2019, 631 million Euros were spend on health promoting interventions by German universities (Hungerland et al., 2021). Reducing these high costs by applying cost-effective nudges is in the interests of both sides of the nudge – the nudged

individual as well as the nudging individual. Again, the original Giacometti nudge is considered promising when its implementation is carefully and empirically tested keeping in mind that it should target specific individuals.

7.2 Contribution of the empirical findings of this dissertation for choice architects in educational settings

A choice architect is any individual responsible for constructing the environment and context in which decisions are made (Thaler & Sunstein, 2009). In an educational setting (like a school or a university), a choice architect responsible for an environment in which dietary behavior takes place (for example a cafeteria) may be a food provider or a university official. For choice architects wishing to apply nudges in real-world settings, developing and applying a new nudge involves four steps. First, the choice architect needs to understand the context in which the nudge will be applied (Ly et al., 2013). This means that the decision-making context as well as any heuristics or influences involved in the decision-making process need to be understood. Second, a nudge suitable for the decision-making context envisaged needs to be selected. Third, areas in which the nudge can be implemented need to be identified. Fourth and finally, the nudge needs to be tested for effectiveness and revised in several iterations if necessary (Ly et al., 2013). The research in the present dissertation stresses the importance of following this approach before applying a nudge openly in public – especially when a new target group is involved. Study 1 (Chapter 2) showed that even a nudge developed based on sound empirical evidence does not necessarily yield the intended results. The Giacometti-like nudge did not improve the eating behavior of school students in a controlled high school setting. Before a choice architect implements a new nudge, rigorous testing is necessary. Study 2 (Chapter 3) likewise showed that a nudge can affect target groups differently. While the Giacometti-like nudges were not effective, the original Giacometti nudge improved the eating behavior of university employees, but not university students in an online setting. When the original Giacometti nudge was applied in a real-world setting it improved the eating behavior of university students while present in the decision-making context (Study 4, Chapter 5). The effectiveness of a nudge may therefore also vary depending on the setting in which it is implemented. Choice architects, like food providers or university officials need to keep these results in mind and accordingly rigorously test a nudge in the specific setting in which it is to be applied.

Next to the rigorous testing in a specific environment, choice architects also need to keep in mind that individuals differ in the degree to which they are susceptible to nudges (nudgeable). Study 2 (Chapter 3) showed that while university employees improved their eating behavior when exposed to a virtual nudge, university students were not affected. Study 3 (Chapter 4) presented a typology of nudgeability regarding university students based on the acceptance of a nudge as a health intervention. The same nudge may yield different results depending on factors like nudge acceptance. Next to assessing the specific context in which a nudge will be applied, practitioners also need to pay close attention to the specific target groups that this

nudge may reach. Study 4 (Chapter 5) revealed that the original Giacometti nudge was perceived as rather unacceptable within a real-world setting. Still, it effectively reduced the number of calories purchased while present in the setting. After its removal, the number of calories purchased increased unexpectedly. Choice architects, therefore, also need to keep in mind what happens when a nudge is removed.

Study 4 (Chapter 5) showed that an artwork nudge like the original Giacometti nudge can improve the eating behavior of students in a real-world setting while present. The application of this artwork nudge in a university cafeteria was easy, cheap, and did not disturb the processes and workflow of the cafeteria staff. When identifying a suitable nudge to apply in a real-world setting, choice architects should consider artwork nudges like the original Giacometti nudge as a suitable tool while keeping in mind that it should be targeted to a specific group of individuals (Sunstein, 2022).

Finally, the research in the present dissertation was able to show that choice architects can improve nudge acceptance (and possibly nudge effectiveness as a result) by creating an optimal setting in which a nudge can be applied. Study 3 (Chapter 4) revealed that when university students perceived the environment as health-promoting their acceptance of different types of nudges increased. Similarly, when university students perceived food providers and university officials to assume the responsibility of providing and creating a healthy environment, their nudge acceptance increased. Consequently, choice architects need to create a health-promoting environment and actively assume the responsibility for doing so to reach optimal results of a nudge applied within this setting.

To sum up the findings of the present dissertation, the four studies contribute to the understanding and application of nudges by choice architects in an educational setting in several ways. These can be summarized by adding to the Nudge Development Model proposed by Ly et al. (2013). Figure 5 presents a summary of these contributions (shown in bold face).

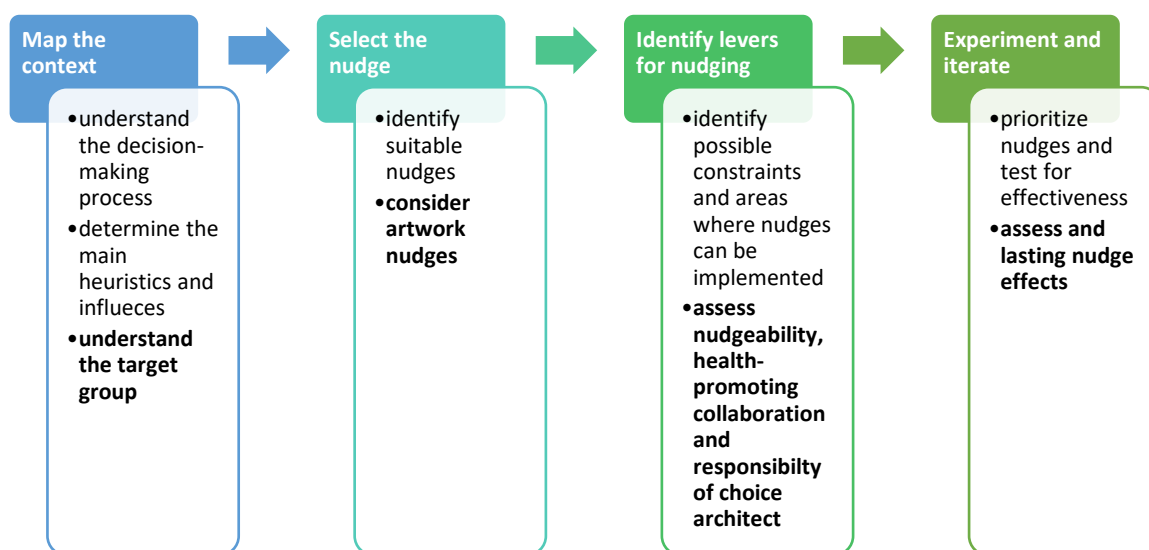


Figure 5. Contributions to the Nudge Development Model (Ly et al., 2013) shown in bold face.

7.3 Current valorization activities in nudging

In the present dissertation the research was conducted focusing on an educational context. One research study sampled the graduating class of high school students (Chapter 2); another study sampled university employees (Chapter 3); three studies sampled university students (Chapters 3-5). Thus, the focus of this dissertation was on university students. Even though health interventions are regularly applied within the university context and 80% of university members are students, these interventions rarely focus on students (Hungerland et al., 2021). In addition, there was heterogeneity in the group of students regarding health as well as socio-economic aspects (Hungerland et al., 2021; Lange et al., 2021). Therefore, even when health promotion takes place in a university setting, it is not guaranteed that these efforts will reach all students alike. The present dissertation was able to develop a typology of university students regarding their susceptibility to nudges (nudgeability; Chapter 4). Three types of students were identified: the nudgeables, the conditionally-mixed nudgeables, and the un-nudgeables. This typology should be considered in nudge development. One nudge design most likely does not reach all three types of students equally effectively (e.g., Sunstein, 2022). Therefore, the design of a nudge may differ and should be targeted to one of the specific groups.

This typology of nudgeable students is based on the acceptance of different types of nudges as a health intervention applied in a university cafeteria and / or university. So far, no commonly used tool to measure nudge acceptance has been presented (Krisam et al., 2021). In this dissertation assessment of nudge acceptance relied on a previously used scale for measuring nudge acceptance (Nørnberg et al., 2016). This scale was carefully developed based

on the MINDSPACE framework often used in nudge development (Dolan et al., 2012; Nørnberg et al., 2016). This nudge acceptance scale was validated using factor analysis and reliability analysis revealing a very good Cronbach's α of .848 (Nørnberg et al., 2016). For the third and fourth studies of this dissertation (Chapters 4 and 5), this scale was adapted and translated into German reaching an acceptable Cronbach's α value of .741 (Chapter 4). The dissertation at hand thus contributes to the development of a commonly used tool to measure nudge acceptance facilitating research on this topic in different countries.

Health promotion at universities should play a bigger role, as proposed in the Okanagan Charter (Hungerland et al., 2021). When nudges are applied as a health promoting intervention, the acceptance of the nudge as a health intervention plays an important role. The more readily a nudge is accepted the more likely it is to be accepted according to the Nudge Acceptance Model (Hagman, 2018). To better understand how nudge acceptance may be improved, the fairly new concept of health-promoting collaboration was introduced as an influential factor in the third study (Chapter 4). The acceptance of various types of nudges was found to increase when individuals felt supported by others in their own health and when they perceived their environment as one where individuals are highly committed to healthiness. Thus, nudge acceptance may be increased when the environment is perceived as health-promoting. This may in turn improve nudge effectiveness.

The research in this dissertation focused on artwork nudges (specifically based on Alberto Giacometti's artwork). So far, these nudges have seldom been applied and researched. The original Giacometti nudge improved the eating behavior of university employees in a virtual setting (Study 2, Chapter 3) and of university students in a real-world setting (Study 4, Chapter 5). While more research on artwork nudges is needed, the present dissertation contributes to making this promising type of nudge more visible. Other areas of nudge research, for example research on physical activity nudges, may follow the example of this thesis and use artwork to nudge.

7.4 Conclusion

In researching the effectiveness of artwork nudges and focusing on the acceptability of nudges, the present dissertation contributes not only to the theoretical background of nudging but also to the practical application of nudges. This dissertation further bridges the research gap regarding nudgeability, an influential factor in nudge effectiveness and the possible long-term effects of nudging. Specifically, choice architects developing and implementing nudges to improve dietary behavior in an educational setting can benefit from these results, and consequently, so also can individuals exposed to these nudges. The new tools developed in this dissertation pave the way to more research specifically on nudge acceptance. Still, it needs to be kept in mind that there is a long way ahead of us to draw final conclusions on how artwork nudges (specifically artwork nudges based on the artwork of Alberto Giacometti) can improve healthy eating in an educational setting without risking

inconsistent results. Continuous evaluation of nudge effects is incumbent on researcher in the area of healthy eating.

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