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Nudging Organizations Toward Sustainable Practices: Addressing Energy and Material Waste in Workplace Environments

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ABSTRACT

This dissertation examines the application of nudging interventions to promote sustainable behaviors in workplace environments. Nudges are subtle modifications to the choice architecture that influence decision-making without limiting freedom of choice. While widely used in household and public domains, their application in workplaces remains underexplored despite their potential to address sustainability challenges and promote behavioral change.

The dissertation is structured into five chapters. Chapter one presents a systematic review of nudges in workplace contexts, highlighting key behavioral domains and intervention types. It underscores the limited use of nudges in organizations and identifies gaps for future research. Chapter two reports a field experiment in an Italian manufacturing plant, where an energy-saving nudge was implemented to reduce energy waste related to machinery use. The study adopted a mixed-method approach, with a preliminary qualitative phase to design a nudge appropriate to the characteristics of the decision-making context, that was later tested in a quantitative phase. Chapter three examines three studies addressing material waste, including coffee cup disposal, paper towel reduction, and water conservation, conducted in the same workplace as the previous one. Chapter four presents an autoethnographic account of the research experience, providing key insights related to the application of nudges in workplace environments, and highlighting challenges that nudge researchers might face when implementing nudges in organizations. Chapter five discusses these findings, emphasizing the importance of tailoring interventions to the multi-level dynamics of organizations.

By addressing the complexities of workplace contexts, this dissertation offers guidelines for future researchers and practitioners interested in the use of nudge to promote behavioral change in workplace environments.

INTRODUCTION

This dissertation explores the effectiveness of nudging interventions in promoting sustainable behaviors within the workplace.

Nudges are defined as changes to the environment in which people make decisions able to gently guide them towards a desired behavior, without mandating or forbidding options (Thaler & Sunstein, 2008). Nudge interventions leave individuals with full freedom of choice while encouraging actions that are ultimately aimed at improving personal or collective well-being. Nudges are proven to be effective across various domains (Hummel & Maedche, 2019; Mertens et al., 2022), showing their ability to promote behavioral change in areas such as health, food and sustainability. They are particularly effective in contexts where individuals tend to act automatically, often during habitual choices and routine situations, or where the benefits of a behavior are not immediately apparent, and the costs of change are more salient. In such contexts, nudges can help overcome biases and heuristics that come into place in the decision-making process (Thaler & Sunstein, 2008; Tversky & Kahneman, 1974) to help the individual make the best choice for increasing personal well-being. This also explains why many studies have applied nudges to promote sustainable behaviors, a domain where the immediate personal benefit of behavior change may be difficult to perceive, but the long-term communal or environmental benefits are significant.

The present dissertation aims to deepen the literature on nudges by exploring their effectiveness in the promotion of behavioral change in workplaces, environments in which individuals spend most of their time and which necessarily present a different architecture of choice than the household one, which ultimately influences behaviors in a different way. Specifically, it focuses on the use of nudges to enhance energy savings, improve waste separation, and reduce resource consumption (i.e., paper and water) in organizational settings. The decision to test the effectiveness of nudges stems from their proven success in promoting sustainability in household settings and the curiosity to investigate their impact in workplace contexts. This approach is based on the idea that sustainability should be pursued across all domains of an individual's life. Additionally, it aligns with the company's interest and need to foster the target behaviors through simple and low-cost interventions, which can serve as a preliminary step before implementing potentially more structural and resource-intensive changes.

The dissertation is structured into five chapters that not only presents empirical studies assessing the impact of nudges on these targeted behaviors but also examines the complexities and contextual nuances involved in implementing nudges in workplaces.

Chapter 1 reports a systematic literature review^a aimed at mapping the current state of research on the application of nudges in workplace contexts. The primary goal is to identify behavioral domains targeted by interventions and the types of nudges employed. However, the review also raised some questions about why nudges, despite their success in other contexts such as the household ones, remain underutilized in workplace environments.

Chapter 2 details a field study conducted in an Italian manufacturing company to assess the effectiveness of an organizational nudge designed to promote energy-saving behavior^b. The target behavior involved de-energizing production machinery during non-working periods, yielding both environmental benefits (reduced CO₂ emissions) and economic gains (lower energy costs). A preliminary qualitative phase identified barriers and facilitators influencing the behavior, informing the design of a context-appropriate nudge. The quantitative phase tested the intervention's effectiveness on 47 high-energy-consuming machines over a 48-week implementation period. Results underscored the complexity of the organizational context and the peculiarities of applying nudges in workplaces.

Chapter 3 presents three studies investigating the effectiveness of a nudge aimed to (a) improve the correct disposal of coffee cups, (b) reduce the excessive consumption of paper towel, and (c) reduce the waste of water by promoting a correct use of toilet flushes. The results of these studies and their implementation processes shed light to some key differences with the application of the energy-saving intervention. The insights gathered contributed to addressing some of the questions raised by the systematic review.

Chapter 4 presents an autoethnographic account of the research experience, detailing challenges encountered during the design and implementation of nudges in the workplace. The findings provide insights into process-related aspects often not emphasized in academic papers, though crucial for understanding the methodological implications of nudging interventions in organizations.

^a Published online on November 8, 2024, in the *Journal of Personnel Psychology*. Available at: <https://doi.org/10.1027/1866-5888/a000362>

^b The associated paper is currently under review by *Energy Resources & Social Science*

Finally, Chapter 5 synthesizes the key takeaways from the research, highlighting critical considerations for designing and implementing nudges in organizational contexts. It emphasizes cross-cutting themes and methodological insights that may be essential for future research in complex settings.

Figure 0.1 provides a schematic overview of the dissertation's content. The systematic review serves as the foundation of this work, offering insights into the current state of the literature on the application of nudges in workplace settings, while raising important questions about the limited use of nudges in organizational contexts, despite their proven benefits in other settings. Building on the findings of the systematic review, the identified behavioral domains and nudge types informed the design of subsequent interventions, integrated with insights from preliminary qualitative research.

The figure illustrates the relationships between the following chapters, showing that each study contributed to gathering insights related to the application of nudges in workplaces, which were later collected into the autoethnographic account and further deepened in the discussion.

By emphasizing the importance of understanding the nuances of applying nudges in complex workplace settings and by offering considerations for the design and implementation of interventions, the dissertation seeks to provide practical guidance for future researchers and practitioners.

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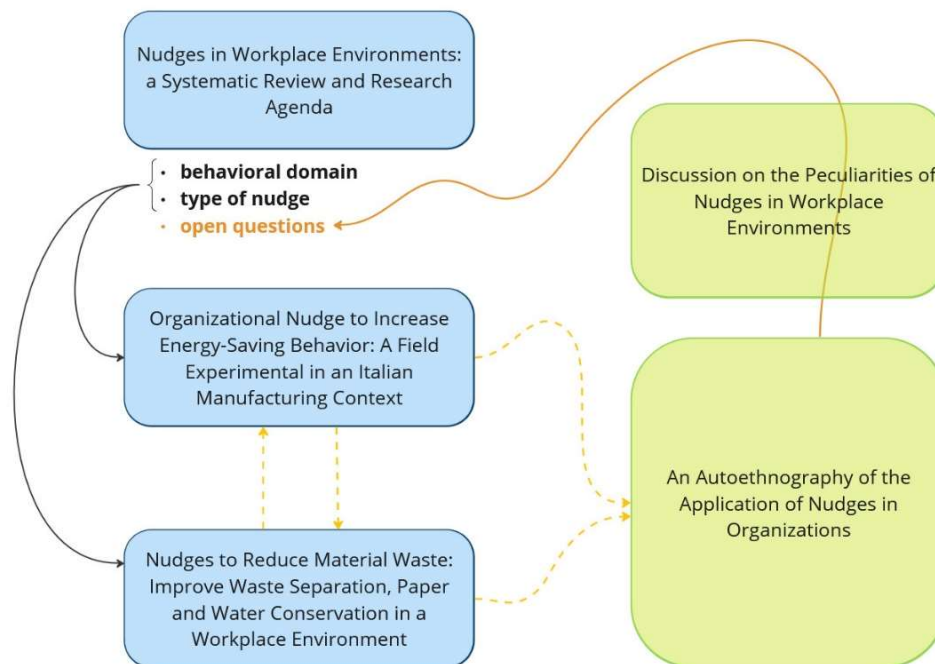


Figure 0.1. Schematic Overview of the Dissertation's Content and Structure

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